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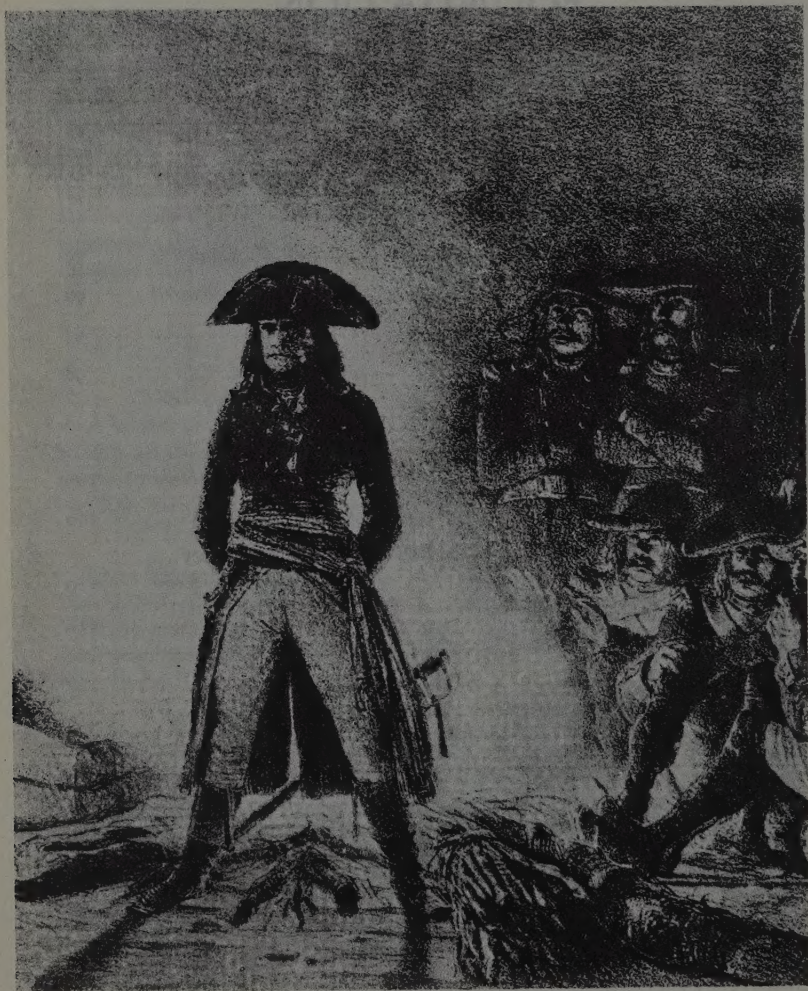
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THE JOURNAL of the  
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*Lithograph by Raffet*



# VIGNETTES OF NAPOLEON IN ITALY, 1796

By Fletcher Pratt

## 1. *Paris and the Frontier of Italy to 21 Ventôse, An IV*

"I HAPPENED to be at the office of the General Staff in the Rue Neuve des Capucines when General Bonaparte came in. I can still see the little hat, surmounted by a pick-up plume, his coat cut anyhow, and a sword which in truth, did not seem the sort of weapon to make anyone's fortune. Flinging his hat on a large table in the middle of the room, he went up to an old general named Krieg, a man with a wonderful knowledge of detail and the author of a very good soldiers' manual. He made him take a seat beside him at the table, and began questioning him, pen in hand, about a host of facts connected with the service and discipline. Some of his questions showed such a complete ignorance of the most ordinary things that several of my comrades smiled. I was myself struck by the number of his questions, their order and their rapidity, no less than by the way in which the answers were caught up, and often found to resolve into other questions, which he deduced in consequence from them. But what struck me still more was the sight of a commander-in-chief perfectly indifferent about showing his subordinates how completely ignorant he was of the various points of a business which the youngest of them was supposed to know perfectly; and this raised him a thousand cubits in my opinion."

In Carnot's also, for Carnot knew of it. Carnot knew everything that touched the military service of the indivisible republic. From his height among the dusty chandeliers of the Luxembourg, the hook-nosed ex-captain of engineers, who had cashiered himself that generals might not have to take orders from a man of lower rank, spied like an eagle along the lines where France lay camped against Austria. They spread from the German Ocean to the Genoese, from the North Sea to the South, interrupted only where Switzerland kept the peace of the snows. The left of that line was sure; there the terrible regiments of the Sambre-et-Meuse marched to immortality under stout old Jourdan, who had marshalled them at Fleurus when Carnot himself led into the flaming muskets with his hat under his arm. The center held a promise of great deeds; here stood the army of the Rhine, best and strongest of the nation, ready to strike toward the Austrian home dominions under the orders of Victor Moreau, the nation's ablest officer.

But the right was weak; Barthélemi Schérer clutched desperately at the hills by the Ligurian Sea, and every week lost a post to the Austrians and their allies of Sardinia-Savoy, plodding onward, dogged and graceless. The Army of Italy starved, for there were no tracks by which supplies might ride the passes and English cruisers cut the routes by sea; they froze, having no wood or overcoats

among the rock-ribbed hills; they died, flinging bare bodies against the overwhelming artillery parks of the allies. The Committee of Public Safety had sent Schérer there in early summer; fat, amiable, handsome, dirty, good enough in argument to talk his way through a stone wall—here was the man to rouse the army's fainting spirits. But they dragged him down before he could lift them up; when Carnot wrote "March! No useless repose!" "Strike and strike hard," or "Attack, attack, attack, without ceasing," he replied with lists of the commissary stores he did not have, and spoke of the difficulty of maintaining his cordon of defence without sufficient guns. The man was beside an inveterate detail-chaser; had no head for sweeping audacious movements, could not see an inch beyond the next mountain crest, must have a plan of campaign tailored to his measure before he dared stir.

Carnot called Bonaparte to draw it; had known that young man for over a twelve-month, which was Auld Lang Syne in the compressed life of the Revolution. Was he not the friend of the younger Robespierre, the author of that famous *Supper of Beaucaire* which came as near as anything could to being the synoptic gospel of the Jacobin faith? He was; he was also the officer who had made that excellent geographical survey of the Riviera region during the An II, which the organizer of victory had been using ever since. "I have a little captain," the Director used to tell intimates when he was still a member of the Committee of Public Safety, before there was a directory, "who knows more of war and Italy than any man in the army." Then came Vendémiaire; the little captain strode through its cannon-smokes to the center of the stage and flung back his cloak on a general's uniform; and Carnot ordered him to draw a plan for the war in the south.

"The King of Sardinia," wrote Bonaparte, "has fortresses at the issues of all the Alpine gorges that lead into Piedmont. To penetrate Italy by forcing the Alps, one or more of these strong places must be taken. But the roads do not permit the movement of siege artillery and besides are covered with snow during three-quarters of the year. It is therefore necessary to turn the Alps and enter Italy precisely at the point where these high mountains fail and the Ligurian Apennines begin. We now hold Savone, a seaport and a place of much strength; a metalled road leads from it through the Apennines to Carcare, Millesimo and Ceva. By penetrating Italy along this line we may succeed in separating the Sardinians and the Austrians, for from Ceva we menace both Milan and Turin; the Sardinians will have to cover the latter, which is their capital, the Austrians the former, which is their base.

"Let the Army of Italy march on Ceva and force the entrenched camp there. This operation must precede every other, no matter in what direction. A horrible mistake has been made in not assaulting the place long ago. Our possession of it





is alone enough to force the court of Sardinia to make peace; and once we get hold of it they will have to come against us in double strength to make us let go."

Old Schérer stared aghast at such a scheme of wild adventure. He had been brought up in the Austrian service, where war was made by the formula of advancing on a widespread front, a *cordon*, the whole army abreast across miles of country, each unit supporting the next. They taught him never to campaign when it was cold, or rained, or the supplies did not come up; never let the enemy get across your flank, never fight without adequate artillery.

"Seize supplies in Piedmont" one note to the plan of campaign bade him. "No splendid success can be obtained on the Italian front except by operating during the winter," declared another, and above all, the plan itself, the wholly unacceptable plan, ordered him to turn his flank and rear to the Austrian cordon while he marched on Ceva. He called in his division commanders for a conference; they felt the same way he did about it, all but two of them—a stocky man with bright beady eyes under a shock of curled hair named Masséna, dark enough to found a legend of Jewish birth, and the giant Laharpe, who boffed his words through a waterfall of moustache.

Discount Laharpe; he is known as "the Grenadier of the Republic" and must maintain his reputation for furious courage in the face of all reason. Discount Masséna too; an old mountain smuggler, he actually enjoys climbing like a goat among these passes where the Alpine winds torture black olive trees before a background of perpetual snow. Discount them; write back to Paris that "The man who drew

this plan must certainly be insane. I can only suggest, Citizen Director, that he come here and try to execute it in person."

The letter reached Paris about the time La Beauharnais made life insupportable to Barras with her importunities. Bonaparte was in Carnot's cabinet on the very day; he struck the paper and his eyes flashed. "Ah, if I were there," he cried, "I'd stand those Austrians on their heads for you!"

"You shall go," said the organizer of victory. Before the twenty-fourth hour he had won Schérer's friend Rewbell to the new appointment by discovering a juicy inspectorship perfectly suited both to the talents and the avarice of the retiring commander; before the thirty-sixth hour the nomination of Bonaparte to the Italian command had been proposed, seconded and carried.

## 2. *The Frontier of Italy, 7-22 Germinal, An IV*

### I

Every army long in active service develops a special tradition. That of Italy was comingled Jacobin republicanism and devotion, in the atmosphere provided by which the appointment of General Puss-in-Boots, who had won his reputation in a street riot and his command in a marriage bed, could not but be distasteful. It was therefore into a circle of glower that Bonaparte walked at the headquarters in Nice, followed by the strapping Murat and his junior aide, a young artilleryman named Marmont, handsome, aristocratic, groomed to the eyelashes.

Old Schérer was there to turn over, surrounded by the divisional officers—Masséna, Laharpe who could have put the new chief in his pocket; Cervoni; Kilmaine with sideburns and Celtic wit; a stiff, correct man, well turned out, with a face like a melancholy horse, who would be Surrurier; a burly desperado of swaggering gestures, feathered like an Indian chief—Augereau; Steingel of the cavalry; batrachian visage, limbs that seemed assembled from a stock of spare parts, hairy knuckles—that was Berthier, the staff man, the map expert.

Heedless of Kilmaine's amusement and the half sneer on Augereau's face Bonaparte sat down and began to explain the detail of his plan in crisp, kindling sentences. He had already received Berthier's report of strength and knew where the troops lay. Division Macquart on the extreme left was to be the army reserve, holding the passes Col di Tenda and Argentièr against a possible counter-stroke from the Sardinians through the Alps; ride them hard, be active, to attract their strength in that direction, to the extreme right of the allied line. Our extreme right is Division Laharpe, with its back to the coast. Push toward Voltri, Laharpe, while a formal request is made on the Genoese Senate for passage through their territories; this will set the Austrians worrying about their extreme left and split them farthest from their Sardinian friends. Division Masséna, next in line, now



concentrated round Savona, will strike straight through the hills by Carcare, Millesimo, Montezemolo, on Ceva. . . .

Masséna interrupted with some point about those mountain tracks he had followed since childhood; was snapped off with word and glance so deadly sharp he almost threw up an arm to protect his face.

Division Augereau, now far down beyond Albenga, would march fast along the coast road, and at Savona swing left into the pass behind Masséna; Laharpe leave a small rear guard toward Voltri and follow the other two in. This would provide a striking force of three divisions in that pass, all marching on Ceva, at whose gates Division Serrurier would join them, coming from its position on the coast south of Augereau's line by way of the subsidiary pass Ormea-Garessio, and bringing the heavy artillery. . . . It would be about this point that Augereau flung back his Horus-head and rapped out objection; he got the same as Masséna, flash like a fencer's riposte, and a grin spread slowly across the countenance of Kilmaine, whose Irish inspiration made him the only man in the group capable of understanding.

The striking force will thus be in position on the weakened allied center at the point where Sardinian lines met Austrian; that that point is a high saddle, a watershed from which the streams flow east, east by north, northeast and north to join the Po, with mountains unclimable between. The cordon system requires Austria to have a column in each valley, moving parallel; as each of these columns arrives at the hub of the wheel, the base of the fan, we will smash it in the face with the whole striking force. Our weak point is our extreme right; here Laharpe must sweep across the front where the Austrian gross is concentrated. To protect him the striking force must first fall on Montenotte, in the cut of the River Erro, the outermost spoke of the fan.

Headquarters, which have not left Nice city since the war began, will be moved out to Albenga, close behind the fighting front. The administration have considered themselves as on a permanent post and have busied themselves more with the comforts of life than with the good of the army; they will be replaced. The shortages of stores and guns will be remedied. The Directory had sent down only two thousand pieces of gold, but each general will receive a proportionate share of this amount and such bills on Genoa bankers as are required for the pay department.

The generals left the room feeling subdued; as they reached outer air, Augereau drew a long breath, and with the freedom from constraint of a man so brave he can afford to confess fear, remarked to Masséna, "That little bastard of a general actually scared me."

"Me too," replied the mountaineer.

## II

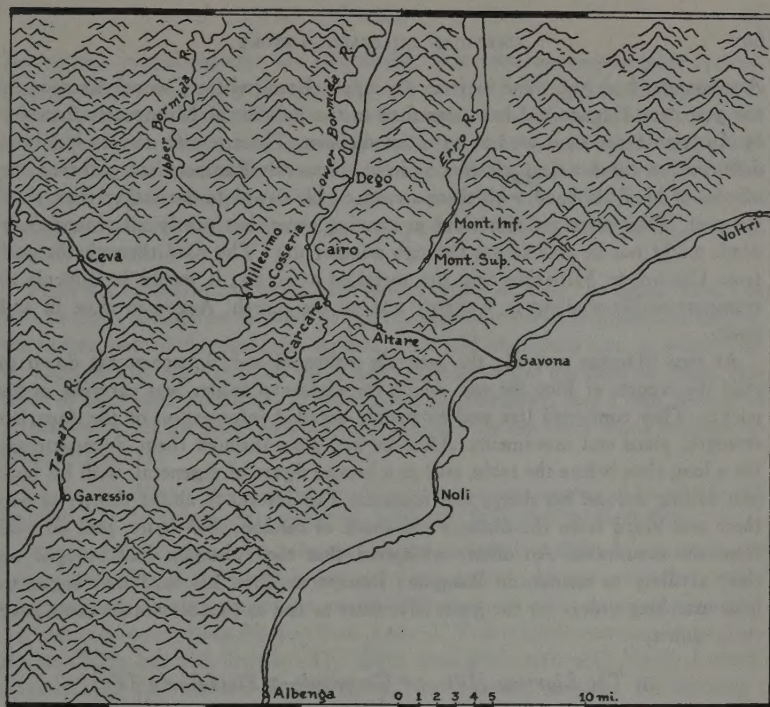
A.E.I.O.U.—*Austriæ Est Imperium Orbis Universo*—was the proud device of the Empire, and the Empire itself a mechanism for the distillation of universal experience, past and present, in the service of universal empery. It was pedestrian, like all systems of thought by compromise, like them also, courageous, wise, catholic and tough. The Austrian soldiers put up their hair in queues with pomatum and powder, marched in white coats, were rated recruits till they had done ten years' time, and not considered canny enough for active service till they had turned the fortieth year. On the field they manoeuvred like figures from a Nürnberg clock, right-dress, left-dress, and perfect cadence across the column of battalions, halting to fire, then taking exactly eight paces through the smoke before the next volley from their flint-locks. "Well-drilled and compact infantry, advancing in close formation under the protection of their guns, can never be stopped," said one of their commanders; his men had the confidence of old experience and this certitude. They were well fed and well paid; they did not have to march late, far, or fast; their movements were covered by an artillery service rated the best in Europe.

Beaulieu was their general in Italy; he was a man of seventy-two, who had campaigned all across Europe from the Belgian plain to the Hungarian and the Giant mountains to the Apennines. 37,000 men were under his standards, so that he outnumbered Bonaparte by 2,000 without thinking of his ally, Colli of Sardinia, who had 25,000 more; and the united artillery of the two stood at 150 pieces against the French 60. The Aulic Council, or Supreme War Conducting Committee, in Vienna had worked out his general strategic plan, which was to seize Genoa, opening communications with the English fleet, and with naval help, hustle the French along the Riviera back to Nice. The news of Laharpe's push toward Voltri and Bonaparte's demand on the Genoese Senate fell in happily with this. The latter permitted Beaulieu to invade the republic in order to preserve its neutrality, the former over-extended the French line with its back to the sea and its front a prolongation of the line of communications, permitting him to split off and destroy a wing.

Accordingly he shifted his balance leftward, toward Genoa. His Division Sebottendorf was to attack the French in Voltri, pinning Laharpe there and attracting reinforcements out to that extreme flank. His Division d'Argenteau should scale the most easterly of the fan valleys, that of the Erro, pass through Sassello and Montenotte, slide briefly down the coastal slope to Savona, there rupturing the French center and trapping their right wing.

On the 8th April he issued his orders; on the 9th the divisions were in motion, Sebottendorf driving in on the French vanguards among the heights round Voltri, carrying everything before him. On the 9th also d'Argenteau pushed through Sassello and next morning struck French pickets in the lesser Montenotte, called





Montenotte Inferior. Three kilometers upstream was Montenotte Superior; there a slash of fresh earth showed the enemy had thrown up a redoubt across his path. D'Argenteau deployed, formed line to carry the place out of hand, and before entering upon the attack had biscuits served out to his men. The artillery was not up yet.

Out among the hills where wind-wracked trees leaped from the rocks among patches of dirty spring snow, there was a crescendo of outpost bickerings and the men of Division Laharpe began to feel Austrian pressure in the heights above Voltri. The line here was a false one, established last winter by order of a civilian army commissioner; Laharpe's men retired, taking what toll they could by skirmisher fire. Masséna at Savona ranked his men for the coming drive and was heartened by the arrival of eight thousand new muskets; a flotilla of sloops came along the coast with 36 guns aboard, mostly old pieces of assorted calibre, scraped from the dustiest corners of Toulon arsenal, but guns that would shoot.

A note from the general accompanied them. The sloops were to be held at anchor in the Bay of Vado with their cargoes aboard, so the Austrians would not hear of their coming till the hour of action struck. On the morning of Germinal 22 Bonaparte followed the guns in. Masséna was out on an inspection, so the commander sat down to read reports and question the officers fresh from the front.

A messenger had just come in from the upper Erro, where Colonel Rampon of the 31st demi-brigade had been assaulted in the redoubt of Montenotte Superior by Austrian forces estimated at an entire division. Three terrific attacks had been delivered on the previous afternoon; in the intervals Rampon had gathered the officers of his little band with them sworn on his sword to die rather than yield the post. They were yet victorious as evening came, but nearly all wounded or dead, might not be able to get through another day. The road through the pass from Carcare to Millesimo was not metalled after all; it would be difficult to transport artillery along it. Laharpe was on the march, Augereau close in and ready.

At two Masséna arrived; the generals embraced and Bonaparte sat down to read the reports of Pico the spy, which the divisional leader was carrying in his pocket. They contained late and extremely detailed information of the Austrian strength, plans and movements. After he had gone through them Bonaparte sat for a long time before the table, still as a bronze figure of a general, with his lank hair falling around his sharp, fine features. The afternoon closed down; at five there was heard from the distance the shock of cannon, then more, peal on peal from the mountains. An officer whispered that the Austrians had brought up their artillery to cannonade Rampon; Bonaparte lifted his head and began to issue marching orders for the great adventure as fast as two secretaries could take them down.

### 3. *The Ligurian Hills, 22 Germinal—7 Floréal, An IV*

#### I

A thunder-storm came up during the evening and boomed among the summits; through it Bonaparte climbed a projecting peak near Carcare under guidance of the curé of Cadibona. Off to his left Division Augereau was marching toward Cairo on the Lower Bormida, in the widest of the fan-valleys and that most suitable for troops, down which a good and direct road ran to the Austrian advanced base at Acqui. At the general's feet Division Masséna shouldered past toward Dego, farther down the same valley. By morning both would be past the flank of D'Argenteau's head of column in the neighboring Erro gorge; Masséna was to turn east short of Dego, could be trusted to find a track through the hills against one flank of that Austrian column while Laharpe struck it from the other.

Dawn broke clear after the tumultuous night; Laharpe's bugles screamed through the first level light and he came storming in on D'Argenteau's left flank, clouds of skirmishers in front, dense columns disorderly, hoarsely singing their *ça ira* behind, while what was left of Rampon's little thousand joined them. One did not surprise the white-coat veterans; they were up, in line, steadily holding head against Laharpe at eight o'clock when the first elements of Division Masséna began to percolate through the hills onto their right rear. D'Argenteau, heavily involved with Laharpe, retreated far enough to narrow his front and detached



Roccavina's brigade against the newcomers. Just then Masséna's gross arrived, putting eleven or twelve thousand French on the field against D'Argenteau's 6,500. Roccavina was wiped out in the effort to hold the new attack; Masséna got through into the Inferior Montenotte, planted artillery in the streets and grenadiers on the rooftops, cut the Austrian retreat. Laharpe broke their weakened line in front; by half past nine D'Argenteau was flying down the Erro, leaving a thousand dead and over a thousand prisoners, his divisional organization a wreck, himself wounded.

From his mountain top Bonaparte looked down on how the battle went; by nine he had a message on the road switching Augereau leftward against Millesimo, the nearest post of the Sardinian cordon, with half Masséna's men to follow him in. Laharpe and the rest of Masséna were ordered across the hills on Dego, key-point of the Lesser Bormida.—Take it (said their orders), levy a contribution of 10,000 livres, all the mules and brandy in town.—By ten there was a bulletin, an order of the day:

*Vive la République!* We attacked 13,000 Austrians on the heights of Montenotte this morning. The Republicans were completely victorious; the enemy lost 6,000 men.

It was read to the moving columns; despite their half a night of marching, the ragged battalions picked up their feet and began to sing. All afternoon Augereau's vanguard was forcing the gorges round Millesimo; at early dawn of Germinal 24, over 10,000 of them hit less than 5,000 of Provera, the commander of Sardinian Colli's leftmost division. The Sards were smothered with hardly a stand. Provera sent half his men back to Ceva, the concentration-point for his army; with the rest and eighteen guns he threw himself into the old robber-baron castle of Cosseria. It dominates the road, and the heavy guns that alone could beat it down were with Division Serrurier, far to the left, beyond two mountain chains. Bonaparte, riding with the heels of the advance, ordered an infantry assault to clear the obstacle out of hand. It failed; he put the men in again through the long-shadowed twilight, but though a brave young brigadier named Joubert this time got into the lines with seven men before being wounded and his supports killed, this was a failure also, Cosseria held. The general masked the castle, drove Division Augereau past through the night to ruffle up the Sardinian effort at relief, and ordered the reserve back to support Masséna against Dego.

The Austrians there were the normal Dego detachment of Beaulieu's cordon, with D'Argenteau and his remnants, come back from the point where Bormida and Erro roads join, 6,000 men with 30 guns. Masséna and Laharpe struck them in the afternoon with 9,000. The white-coats stood up like heroes, the losses were terrific on both sides and twice the French storming columns were beaten back. Weight told in the third push; the Austrian right broke, their whole line went to pieces with 3,000 men and all the cannon lost, just as the last musket cracked into silence away westward at the gates of Cosseria.

Masséna's men had only half a night to rest on their victory; before day they were on their way to join Augereau, and though their eyes were caving into their heads from sleeplessness, they drove through the early hours willingly and cheering, for this rabble that had never known victory was winning, winning, winning. Austria was knocked out; the fan spokes held stout against her; Sardinia must be crushed now before Colli could fully concentrate, and every private knew it.

## II

The Austrians were not knocked out; not even aware they had been badly hurt, so sluggish flowed the nerve-stream of their being. The eighteenth-century war which Beaulieu knew conceived of cordon inside military cordon like the multiple skins of an onion. Let the outmost shell be punctured; one concentrated around some fortress in the circle next inward and struck the enemy a full-arm blow in battle as he came riding in, disordered by the road-troubles inevitable in advance. On the afternoon of April 12 Division Sebottendorf crashed through the outpost line round Voltri and found the place empty of French; by night Beaulieu had both this news and that of D'Argenteau's defeat on the heights of Montenotte the same morning. To the Austrian this meant that Bonaparte was establishing a new cordon, running through Savona, Montenotte, Carcare, with its left flank drawn back to Ormea, looking to an advance down the Erro.

Acqui was the central strong point of his own next inner cordon, the spot where the fan-rivers united after wanderings. He immediately began concentrating there for a counterstroke. The detachments from the Greater Bormida valley were ordered in, reserves from as far back as Milan ordered out; Sebottendorf was also to fall back there through the hills from Voltri. The link between Sebottendorf and D'Argenteau had been furnished by a division of Serb and Hungarian troops, hardy mountain men under Wukassovich, himself a Serb. Let them take the hill-tracks from Sassello to Dego, there meeting more artillery sent out from Acqui. This would make a strong forward concentration in the gateway of the hills, through which Beaulieu could presently debouch with his whole force to rupture the new French cordon or from which he could stab the back of a renewed Gallic advance. Wukassovich, a good soldier, would take over general direction from D'Argenteau, "a miserable bungler with a head too big for his body, only fit to make warfare in the boudoirs of women."

In another world, in another age, the plan was sound. But Beaulieu slept a night on it in the comfortable manner of his time; his white-coats did not, could not, march without sleep, on eau-de-vie and glory; and their roads were bad. Sebottendorf was late coming through the hills from Voltri; the artillery from Acqui so tardy reaching D'Argenteau in Dego that they met only the foam of his second defeat, with Masséna harrying the stragglers.

Meanwhile Wukassovich pressed slowly on. At two in the morning of April 15, the 26 Germinal, one of his scouting parties reached the outskirts of Dego



and found the French in possession. They were men of Meynier's command, troops of the general reserve, who had followed Masséna into Dego, dispersed to loot and gone to sleep drunk. Wukassovich roused his regiments, got them into formation, and at three o'clock, stormed into the town, breaking up Meynier and taking 700 prisoners. French in Dego argued more French somewhere near; Wukassovich set to work at once on the service of security and by ten in the morning had each of the six hills that surrounded Dego crowned with a redoubt.

### III

Provera had no water in Cosseria Castle and his last ammunition had been spent repulsing the assault of the evening before. When daybreak of the 14th came with no sign of relief from Colli and the mountain echoes throwing back gunshots that grew ever fainter toward Millesimo, he beat the chamade.

That was the day of Masséna and Laharpe in Dego; toward evening the victual wagons began to come through Carcare and toward the next dawn, the vanguard of Masséna's victorious men, shivering in their rags and the night-cold, but cheerful. It would be hardly light when an aide galloped along the column; at six he found Bonaparte near Millesimo, told him of Meynier wrecked and Wukassovich in Dego.

There was something like a panic among the staff, all of them men so much older in years and knowledge of the rules of war than their commander—this was the fruit of military futurism, whisper, whisper, the law is inevitable, cramps down with double force on those who for a time evade it, whisper, we are flanked, cut off, whisper. Bonaparte only tightened his pale lips, snapped out an order transferring Meynier to permanent base duty, and rode down the column of weary, shambling men, reversing their direction from a tramp back to Dego over those miles of mountain paths down which they had just come.

By noon he had them round the place, with some of Laharpe's as well, ranking in a vale of terraced vineyards and little patches of grove among the mountains; by two o'clock they were ready, an attack was launched at every point against and between Wukassovich's redoubts. It could not be driven home against the Serbs; Bonaparte rode forward, rallied the men and sent them in again. An adjutant named Lannes led one column, with his hat elevated on the point of a sword; they got into a redoubt, took it, then stopped in a boil of disorganized victory, but another mass of men swept past, right into and over the Austrian center. Wukassovich's little division, only 3500 to begin with, was destroyed, and the nearest organized Austrians remaining were with their general back at Acqui.

From a hilltop Bonaparte had marked that last wave of assault and the soldier who led it, out in front of the column, leading them like a bell-wether. "Who is that man?" he demanded; being told it was Major Lannes, replied that he was Colonel Lannes henceforth and turned rein for the saddle of the watershed.

# THE UNITED STATES MILITARY RAILROADS, 1862-1865

*War Time Operation and Maintenance*

*By E. G. Campbell*

IN THE years immediately preceding the Civil War American military officials were aware that the rapid growth of the railroad industry would exercise an important influence upon future military strategy. In 1857 a spokesman for the War Department declared that "our Western rivers, canals, and railroads" had "largely increased the military power of the United States for defensive purposes," by the facilities their means of transportation afforded "for the rapid and certain movement and concentration of troops and supplies at most of the assailable points of the country."<sup>1</sup> Soon after he had assumed command of the Union forces in Virginia in 1861, General McClellan, himself an experienced civilian railroad official, asserted that the construction of railroads had "introduced a new and very important element into the war, by the great facilities thus given for concentrating at particular positions large masses of troops from remote sections, and by creating new strategic points and lines of operations."<sup>2</sup>

Both civilian and military officials were depending on the railroads to play an important role in crushing the rebellion; nevertheless for an entire year the Government permitted the railroads to determine what their contribution should be, and did not attempt to exercise the slightest supervision of their efforts. Before that year had elapsed roads of the utmost military importance in the vicinity of Washington and to the south of it were in an almost hopelessly chaotic condition.

Confederate depredations materially helped to produce this situation, but even before 1861 these roads had been poorly built and improperly maintained. Throughout the country, during the late fifties, tracks were very slightly ballasted, and although the ties were set close together to compensate for this weakness, they did not weather well. Experiments to prolong the life of ties by treatment with creosote had been unsuccessful thus far. Steel rails were unknown; in the North solid iron sixty-four pound rails were laid in the better constructed roadbeds, but in the South wooden rails, capped with a layer of iron and weighing about fifteen pounds to the yard, were still in general use. A few iron bridges were being built, mostly in the North, but in the regions destined to become war zones almost all of the railway bridges were constructed of wood.

<sup>1</sup> *DeBow's Review*, XXII (1857), 630-31.

<sup>2</sup> Quoted in Carl R. Fish, "The Northern Railroads, April, 1861," *American Historical Review*, XXII (1917), 778-95.



Much of the rolling stock was of the most up-to-date standard type for the times. A passenger coach designed to seat fifty persons usually weighed between ten and twelve tons, and was equipped with double-pivoted wheel-bases carrying eight wheels. Most cars were heated by stoves, and many trains were provided with such luxuries as smoking-cars, water-filters, toilets and newsboys. The sleeping-car was a well established institution, although no practical dining-car had yet been built. For the most part locomotives burned wood and emitted huge clouds of smoke through their turnip-shaped stacks; some experiments had been made with coal as a fuel, but its use did not become general until after the war. The engineer was protected from the elements by a small house mounted on the slight body of the locomotive; and the latter was equipped with the traditional bell. Despite (or perhaps because of) the musical warning to trespassers, effective cow-catchers were necessary in a day when there were few fences separating pasture from roadbed.

However, despite all the other crudities which, to a later generation, seem to have characterized the railroads of the sixties, the greatest and most important single obstacle to efficient railroad cooperation lay in the use of several different gauges of tracks. In the Northern states alone more than ten different widths were in everyday use; and although the narrow gauge of 4 feet 8½ inches was gradually becoming standard, the Erie and some other important companies still used the 6 foot gauge. In the South a 5 foot width was favored, but not exclusively. In the border states, where the Civil War would be fought, all possible gauges were used and a maximum of confusion existed. Between Philadelphia and Charleston, for example, passengers and freight had to change cars eight times because of variations in gauge.<sup>3</sup>

These differences of gauge were inconvenient enough in peace-time; but in wartime they became of paramount importance, for they precluded the transfer of rolling stock from one road to another as military necessity might dictate. Frequent large troop concentrations required unusually large shipments of freight just when demands on railroads throughout the Union were at a maximum, so at best there was a constant shortage of rolling stock. When to these initial difficulties were added those caused by Confederate raiding parties, the situation became well-nigh hopeless. Ties, rails, bridges, cars, and locomotives were in danger of destruction or capture at any time, and the Confederates hastened to exert their best efforts in an endeavor to paralyze the border state railroads. In mid-summer of 1861 *Harper's Weekly* declared that "no less than fifty of the finest locomotives" of the Baltimore & Ohio had been destroyed in Virginia; they had been "mutilated, some by burning, others by mere destruction with hammers and crow-bars," and some by having been dumped into the Potomac.<sup>4</sup> So dam-

<sup>3</sup> *Ibid.*

<sup>4</sup> July 20 and August 3, 1861. See also *American Railroad Journal*, July 19, 1862.

aging were the Confederate raids that, combined with the general stimulation of business caused by the war, they produced a boom in locomotive building. It became doubtful whether existing factories would be able to meet the ever-increasing demands made upon them.<sup>5</sup>

The cumulative effects of all these conditions were gradually paralyzing rail transportation south of Washington during the summer and fall of 1861, and the strategic necessities of the Union armies in Virginia brought the situation to a crisis early in 1862. The Army of the Potomac under McClellan was in front of Yorktown, and the Army of the Rappahannock, commanded by McDowell, was near the Potomac. Both generals agreed that the two armies must cooperate for the march on Richmond, yet neither could move unless rail communications with the depots on the Potomac were restored and maintained. The damage suffered by the railroads included the burning of the wharves and buildings at Aquia Creek, the complete destruction of three miles of roadbed near Fredericksburg, and the destruction of bridges across the Potomac, the Rappahannock, and Ackakeek Creek. The operation of short stretches of railroad by individual generals and their staffs, furthermore, had only increased the general confusion.<sup>6</sup>

In order to solve immediate problems and to assure the Union armies of efficient service in the future, all roads in the eastern war zone were taken over by the government and the Lincoln administration called on Daniel Craig McCallum and Herman Haupt to undertake their reconstruction and operation.

McCallum was a Scotsman by birth, but his parents had brought him to this country as a boy and he had been raised in Rochester, New York. After an elementary education, he had turned to architecture and railroad engineering; in 1851 he had invented an arched bridge truss which assured him of a comfortable income for life, and this initial success turned his energies to bridge construction during the next few years. He moved to New York City and, after a year as general superintendent of the Erie, became president of his own McCallum Bridge Company, at the same time continuing to act as consulting engineer for various railroads. In addition to his other accomplishments, McCallum was the anonymous author of a published volume of poetry, but as long as he remained in business he refused to admit being a poet, lest his colleagues "take him for a fool."<sup>7</sup>

Haupt was two years McCallum's junior. He had been born in Philadelphia and, after preparing at private schools, had received an appointment to West Point from President Andrew Jackson. He was graduated in 1835 at the age of

<sup>5</sup> *Ibid.*, May 24, 1862.

<sup>6</sup> *Report, Haupt to Stanton, September 9, 1863* (n. p., n. d.).

<sup>7</sup> *New York Sun*, December 29, 1878; *Dictionary of American Biography* (New York, 1928-35), XI, 355-56.



eighteen and breveted second lieutenant in the Third Infantry. Instead of remaining in the army, however, he refused the commission after three months' delay and entered railroad engineering. In 1840 he published a book on bridge construction, and thereafter he became increasingly interested in the subject. For two years he abandoned his railway career to teach mathematics in Pennsylvania College at Gettysburg—and incidentally, all unknowingly, to become familiar with the terrain on which was to be fought one of the decisive battles with which his name was to become connected. He later resigned his professorship to become superintendent of the newly chartered Pennsylvania Railroad. He spent most of the next few years with the Pennsylvania, but in 1856 he resigned to begin his greatest civilian effort, the construction of the Hoosac Tunnel. He was in the midst of this work when Secretary Stanton called him to go to Virginia.<sup>8</sup>

The first task confronting the newly created Military Railroad organization was to restore railroad service to Fredericksburg in order that the armies might move. Haupt was in complete charge of the work and was directly responsible to General McDowell. Time was at a premium; therefore, despite almost constant rain and a serious scarcity of material, construction was begun almost immediately. In three days one group of workmen laid the necessary three miles of track while another gang cut and fashioned ties in the adjoining woods. The first bridge, over the Ackakeek Creek, was commenced soon after noon one day and was in use at the same time on the next; only fifteen working hours had been spent in building it, although it spanned 120 feet and was thirty feet high.

The construction of the nearby bridge over Potomac Creek was an unprecedented accomplishment, especially remarkable in that it was built by an untrained crew without waste of time. During the campaigns of Napoleon trestle bridges of more than one story had been considered impracticable, but Haupt chose to ignore tradition. Using round sticks cut from the neighboring woods and not shorn of their bark, he built a structure eighty feet in height comprising four stories, three of which were trestles and one crib-work.<sup>9</sup> A few days after it had been completed President Lincoln was in the vicinity on a visit to McDowell and stopped to examine Haupt's masterpiece. On his return to Washington he told members of the War Committee that he had "seen the most remarkable structure that human eyes ever rested upon. That man Haupt" had "built a bridge across Potomac Creek, about 400 feet long and nearly 100 feet high, over which loaded trains are running every hour, and upon my word, gentlemen, there is nothing in it but beanpoles and cornstalks."<sup>10</sup>

Whether built of beanpoles and cornstalks or not, the bridge daily bore between ten and twenty heavy trains in each direction and survived several severe freshets

<sup>8</sup> *New York Tribune*, December 15, 1905; *Dict. Amer. Biography*, VIII, 400-401.

<sup>9</sup> *Report, Haupt to Stanton*.

<sup>10</sup> Herman Haupt, *Reminiscences of Herman Haupt* . . . (Milwaukee, 1901), 49.



*Photograph: Signal Corps*

HAUPT'S "BEANPOLES AND CORNSTALKS" BRIDGE



*Photograph: Signal Corps*

AFTER A CONFEDERATE RAID: RECONSTRUCTION ALMOST COMPLETED

and storms. Actually it consisted of more than two million feet of lumber, all of which had been cut in the vicinity, and it had been completed in nine working days. Nine months had been spent in building the former structure on the same site.

As a result of these achievements the line to Fredericksburg was open for use in about three weeks.<sup>11</sup> But the work of railroad reconstruction had only begun. Although during the entire four years of the war only one railroad, that around City Point to supply the armies before Richmond and Petersburg in 1864, was originally built for the immediate use of the army,<sup>12</sup> the Confederates saw to it that the construction corps had steady employment. Every time a Southern army retreated, it tore up and destroyed all the roadbeds within reach, and took away all the rolling stock it could carry. Raiding parties were even more effective in wrecking railroads; despite all the efforts of Union troops it was manifestly impossible to patrol the war zone in sufficient force to guard against sudden raids by large units of cavalry. The greatest source of trouble, however, was the activities of guerrillas who placed obstructions on the tracks, loosened rails and then snatched them from under the wheels of speeding trains by wires running into the surrounding forests, and burned bridges and all other kinds of equipment.<sup>13</sup>

Such destructive efforts, although they roused horrified protests from Union owners, were in reality less advantageous to the Confederates than the employment of guile. The most famous and probably the most profitable coup was engineered by Stonewall Jackson at the very outset of the war. In 1861 he was in command of the northern district of Virginia, across which ran 120 miles of the Baltimore & Ohio line to the West. Had he pursued the obvious course and destroyed the line, he would have angered many of the citizens of Virginia and Maryland who depended on the road for their day-to-day living, and perhaps at one stroke he would have ended the hopes of adding these states to the still-growing Confederacy. Therefore, he left the line undamaged, and even permitted the company to maintain the regular schedule.

Eventually he levied a toll for this privilege. For twenty-seven miles east and west of Harper's Ferry, his headquarters, the line was double-tracked, and over these rails a tremendous coal traffic was moving as the Union government accumulated coal surpluses along the seaboard for naval use. Jackson complained that the incessant noise caused by these trains was disturbing the repose of his army, and requested that the company's president order all east-bound trains to cross the stretch of double track between eleven and one o'clock each day. The president, rather than rouse the enmity of an army encamped athwart his road, complied at once. A few days later Jackson again complained; the empties returning west-

<sup>11</sup> *Report, Haupt to Stanton.*

<sup>12</sup> *F. J. Crilly to D. H. Rucker, August 17, 1867* (n. p., n. d.).

<sup>13</sup> Haupt to John Bigelow, in Bigelow's *The Principles of Strategy* (Philadelphia, 1894),



ward, he said, were still disturbing his army, so he would appreciate the courtesy if the company would route them over the double track at the same time that the full trains were going eastward.

Thereafter for two hours every day the Baltimore & Ohio line from Point of Rocks through Harper's Ferry to Martinsburg was the busiest in the country. Then Jackson acted: the officers commanding at each end of the double track were told that next day they should permit trains to enter, but not to emerge from the bottle-neck. In a short two hours all the trains scheduled eastward and westward for twenty-four hours were rounded up. Jackson ordered them to be run to Winchester and thence they were moved by horsepower to a railway at Strasburg which connected with systems farther to the South that had been badly in need of rolling stock.<sup>14</sup>

By November of 1862, McCallum estimated, at least 400 cars and eleven locomotives on government-operated roads had been destroyed, captured or wrecked east of the Blue Ridge. The most obvious method of replacing these losses was to raid the privately operated roads' supply of rolling stock, and this was done.<sup>15</sup> In addition the military railroads contracted for the manufacture of new equipment. At one time McCallum stepped in and commandeered three locomotives which the Baldwin Locomotive Works was just finishing for Commodore Vanderbilt's New York Central. The commodore protested, but Secretary Stanton answered that he could not revoke the order, because the needs of the Army of the Cumberland were paramount to any private considerations; and he ended with a request that Vanderbilt use his "well-known energy" to help the Government get the locomotives operating as soon as possible.<sup>16</sup>

When manufacturers threatened to profiteer at the expense of the military railroads by charging exorbitant prices, McCallum announced that the government would build its own factories if the established companies charged it one dollar more than they charged private roads. Since the military railroad's successful operation of a steel rail rolling mill lent weight to McCallum's words,<sup>17</sup> the manufacturers took the hint and bent their best energies to filling government demands at the market price.<sup>18</sup> Altogether during the war the military railroads purchased and built 312 locomotives and captured 106 from the Confederates; in addition, 5,111 cars were purchased, fifty-five built, and 409 captured.<sup>19</sup>

<sup>14</sup> *Battles and Leaders of the Civil War* (New York, 1887), I, 122-25.

<sup>15</sup> *Report, McCallum to Stanton, May 26, 1866* (n. p., n. d.).

<sup>16</sup> Stanton to Cornelius Vanderbilt, November 20, 1863, in *The War of the Rebellion, A Compilation of the Official Records of the Union and Confederate Armies* (Washington, 1881-1901), ser. III, III, 1083-84. Hereinafter cited as *Official Records*.

<sup>17</sup> *Report, McCallum to Stanton*.

<sup>18</sup> McCallum to Stanton, April 9, 1864, in *Official Records*, ser. III, IV, 219-20.

<sup>19</sup> Not including rolling stock borrowed from privately operated roads. (*Report, McCallum to Stanton*.)

Maintenance of rolling stock, however, was only part of the task; maintenance of roadbeds was equally important if railroad service immediately behind the lines were to be continued. From February of 1862 to the spring of 1865 more than 640 miles of track were laid or relaid on the military railroads, and more than twenty-six miles of bridges were built or rebuilt.<sup>20</sup> At times the simple exhaustion of equipment necessitated rebuilding whole lines. For instance, when McCallum assumed responsibility for the roads in the West in 1864 he found that the 151-mile Nashville & Chattanooga main line, which was the chief artery for supplying the armies of the Cumberland, the Ohio and the Tennessee during Sherman's campaigns around Atlanta, was so worn that more than one hundred miles of it had to be relaid with new iron rails and cross-ties and ballasted.<sup>21</sup> The old roadbed had deteriorated to such an extent that the spreading of rails on their rotten ties daily resulted in the dropping of entire trains between them. In addition, there was not a single siding long enough to accommodate more than a train hauled by one engine, and water stations and wood supplies were completely inadequate.<sup>22</sup>

Some trackage was torn up and relaid in order to attain a degree of standardization of gauge, because it proved easier in many cases in Virginia and the Southwest to relay rails with a 4 foot, 8½ inch gauge than to obtain locomotives which would run over the former 5 foot gauge.<sup>23</sup> More frequently, however, the labors of the construction corps were attributable to the raiding activities of Southern cavalry. Certain stretches of road were torn up as many as five times during the war, and each time patiently replaced.

The Confederates usually destroyed roadbeds by piling cross-ties and nearby fence rails in a heap, putting the rails on top and setting fire to the wood; when the heat was most intense the rails would twist and bend of their own weight. Not only was the procurement of new rails expensive, but necessarily it took time. Herman Haupt experimented with the débris left by a rebel party which had destroyed about ten miles of the Cumberland Valley and Franklin roads just after the battle of Gettysburg. He discovered that such damage could be repaired with relative ease through the adoption of a standardized procedure by which any rail not bent into a curve of less than a foot radius could be straightened without even heating. He invented a portable contrivance consisting of five blocks of wood, each about ten inches square and five feet long. "The top block was notched slightly, to receive the base of the rail and cause it to lie with the plate of the base vertical. The pieces of scantling, three by four or four by four, were

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<sup>20</sup> *Ibid.*

<sup>21</sup> *Ibid.*

<sup>22</sup> Report, Adna Anderson to McCallum, October 25, 1864, in *Official Records*, ser. III, IV, 963.

<sup>23</sup> *American Railroad Journal*, May 24, 1862; see also *Report, McCallum to Stanton*.

placed across the ends. Twelve or sixteen men at each end would press down or relieve the pressure at the word of command." The rail was moved forward or back and turned around in this contraption until it was almost perfectly straight. In two or three minutes, Haupt found, workmen could straighten a rail sufficiently to permit relaying it and spiking it in place. Although not perfectly formed, the finished product was straight enough for trains to run over it; and such reconstructed rails could be aligned more precisely at leisure.

If a rail were bent in the direction of the plane of the vertical rib, it was raised to the height of a man's head and dropped on a cross-tie; invariably one or two applications of this process would take out the kink. Another method of removing bends of this sort was to plant two posts in the ground, about two and one-half feet apart, attach a rope to the end of the rail, support the rail beyond the fulcrum thus formed, and exert pressure on the rope.

Rails which were too bent to be straightened while cold were piled along the way and collected later. Then they were taken to a furnace already prepared for them, consisting of two parallel walls of brick, stone or sometimes even clay, with bars laid across to hold wood or coal. After the rails were heated, they were laid on a straightening table and hammered until the bends had been removed; water was then poured on to cool them.<sup>24</sup> All of this apparatus was portable and easily replaceable in case an enemy raiding party should catch the construction corps unawares.

One of the greatest accomplishments of the military railroads during the war was their development of bridge building techniques to a similar independence of complicated machinery. By the time Sherman began his march through Georgia, bridge construction had become a routine procedure. The necessary tools consisted of axes, cross-cut saws, spiking mauls, augers, ropes, block and tackle, timber-rollers, scaffolding plank and, when available, sets of balance beams and a few carpenters' tools. Wrought bridge spikes were carried for use in temporary works. Ox teams were often used for land transportation and occasionally for rations; the entire corps traveled by train, using flat cars for materials and stock cars for the animals.

Actual construction of a bridge over a large stream would be commenced by leaving a group of men in the rear to cut timber and flatten it on two sides. As the wood was cut it was taken to the bridge site, where framers and raisers were already at work clearing rubbish from the banks. As soon as the first load of timber arrived the "raisers would begin operations by rigging and running out their balance beams at both ends of the bridge. The framers would frame and put a bent together on the ground ready to be launched into the stream or raised from

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<sup>24</sup> Haupt to Gen. Henry W. Halleck, August 4, 1863, in Haupt, *Reminiscences*, 255-56.



the ground into place, according to circumstances. By the time a bent was put together, the levelers would be ready to give the exact length for cutting off the feet of the posts; in the meantime the raisers would have their balance beams rigged and the falls lowered ready to raise the bent into position. As soon as the bent was stayed, the balance beams would be run out from the next bent." This same procedure would be repeated, working from both shores at once, until all the bents were in place. Meanwhile another gang would have constructed a temporary ferry for crossing the stream, upcurrent from the bridge; by means of it bents designed for the middle of the bridge could be floated into position.

If the bridge were to be of more than one story, very little attention was paid to the height of the first sections; but when these were in place levelers would determine the size of the upper sections. While the skeleton of the bridge was being put into position, another gang would be busy bracing it at points of greatest strain, and a third gang would be putting track stringers into place. The stringers were never spliced or laid end to end, but always overlapped each other, and the number used depended entirely on the size and quality of the available timber. The final operation was the laying of the track; common cross-ties were attached to the stringers with long bent spikes, and the rails spiked into place in the usual manner.<sup>25</sup>

This procedure was used extensively, but whenever possible it was replaced by an even more standardized method, which in one case enabled Haupt to replace a trestle bridge over the Potomac Creek by a truss bridge without delaying a single train for a minute. For the first time in history trusses 400 feet long, and in three spans, were raised in about a day and a half. The new type of truss was adapted to any span or location; it could be used for either deck or through bridges, and could be constructed in advance and kept ready for emergencies. All the parts were alike and interchangeable; any piece of timber in the bridge could be reversed and it would fit equally well. Sixty foot spans were prepared well behind the lines, loaded on flat cars and transported to rail-end, then hauled by oxen to the river's edge. No parts had to be put together until the construction gang arrived at the appointed spot, yet they could be assembled in record time.<sup>26</sup>

The rapidity with which the construction corps worked led to a firm belief in the minds of many people that the Union could build bridges and lay track faster than the Confederates could destroy them. Early in October of 1864, during Sherman's march through Georgia, General Hood managed to circle around Sherman's army and destroy more than thirty-five miles of roadbed and nearly 500 feet of bridges in the rear. But even before the raiders had left the line, workmen were

<sup>25</sup> E. C. Smeed to Haupt, May [?], 1899, in *ibid.*, 294-96. This letter was unfinished at Smeed's death and was forwarded by his daughter.

<sup>26</sup> *Report, Haupt to Stanton.*

busy repairing the damage, and soon they were working from both ends of the break. Twenty-five miles of track and 230 feet of bridges were carrying traffic again in seven and one-half days, and the entire damage was repaired in thirteen days.<sup>27</sup> Throughout Sherman's campaign his troops no sooner had their tents pitched than a locomotive's whistle would announce the arrival of their supplies.<sup>28</sup> Although rival construction gangs of the Central Pacific and the Union Pacific were to surpass the rapidity with which the military railroad gangs laid rails, they not only had the benefit of the experience gained during the war, but also were not subject to the raids of an enemy, nor to the myriad handicaps of wartime emergency work. Considering the circumstances under which they labored, and their daily accomplishment of things never before even attempted, the members of the construction corps made an enviable record.

Their efforts were not entirely devoted to reconstruction, however. The rebel raiders were not without competition in their efforts to cripple the enemy by destroying his railroads; on the contrary, the Union forces reduced railroad destruction to the same exact science that they developed in railroad construction. In the autumn of 1862, after Pope's defeat at the Second Bull Run, nearly 300 cars had been destroyed to prevent their falling into the hands of the rebels. Haupt dryly commented that cars were readily destroyed by burning, and "on this subject no instructions are necessary. The destruction of more than four hundred cars by our own troops within the last six months proves that in the work of destroying such property perfection has been attained, and no room left for winning fresh laurels in this field." However, the Union forces had not similarly perfected techniques for the destruction of locomotives and roadbeds and bridges, and so he formulated rules to guide these efforts.

The most effective method of rendering a locomotive unfit for service was to fire a cannon ball through the boiler; this resulted in damage which could not be repaired without removing every flue, a slow and tedious process. An alternative method, frequently used, was to burn out the flues by draining the water from the boiler and making a fire in the fire-box; but this was usually done so imperfectly that the engine could soon be made to run again.

A much more complicated problem was the effective destruction of roadbed and bridges by raiding parties. Usually fire was used, but often Confederate troops came up in time to extinguish the flames before much damage had been done. Yet at the start of the war cavalry penetrating deep in to enemy country had little choice: the only accepted methods of tearing up track and destroying bridges involved the use of cumbersome tools which could not be carried on the back of a horse. Portable tools were needed, and Haupt experimented until he found them.

<sup>27</sup> *Report, McCallum to Stanton.*

<sup>28</sup> Francis J. Lippitt, *Field Service in War* (New York, 1869), 147.



*Photograph: Signal Corps*

# CONSTRUCTION CORPS AT WORK



*Photograph: Signal Corps*

# REPLACEMENTS FOR RAILS



For destroying bridges he developed a torpedo which consisted of a short bolt, seven-eighths of an inch thick and eight inches long, with a head and nut; the head was two inches in diameter and about one inch thick. A washer of the same size with a fuse hole in it was placed under the nut at the other end. Between the washer and the head was a tin cylinder one and three-quarters inches in diameter, open at both ends, which was filled with powder. When the washer and nut were fastened a case for the powder was formed. A hole was bored in the bridge with a small hand augur; the torpedo was inserted and the fuse ignited.

Most of the railroad bridges in Virginia were Howe trusses without arches. In this type of construction, if the two main braces at one end of a span were destroyed by using the torpedo, the rest of the bridge would be completely wrecked and fall of its own weight. Since two men could bore and place the two torpedoes at the same time, a bridge could be destroyed in a very few minutes with equipment which could be carried conveniently in a pocket. Furthermore, these torpedoes were more powerful than might be supposed; in actual tests at Alexandria one of them shattered a piece of timber into small bits, some of which landed more than a hundred feet away.<sup>29</sup>

Almost equally effective portable devices for tearing up track were gradually developed, although the problems involved were very similar. If all the ties were not wholly destroyed rails could be replaced nearly as rapidly as they were torn out. At various times the Confederates tried several different methods of track destruction in an effort to hinder the Union forces. On the Loudoun & Hampshire line, for instance, the ties were burned and the rails were heated and then bent around trees to form complete circles; Sherman used this same method during his march through Georgia. In another case, when Southern cavalry destroyed three miles of Richmond, Fredericksburg & Potomac road in April of 1862, they burned the ties and carried the rails south to use on their own roads. But either of these methods required more time than a raiding party usually had at its command, and involved the use of crow-bars, which were too heavy to be carried except in wagons.

Haupt well knew from his own experiences that if rails were simply bent they could be quickly straightened and used again. The only effective way to make a rail useless was to give it a spiral twist, like a corkscrew. If in addition to such a twist, a rail were bent, it was entirely useless until it had been recast. At the beginning of the war the apparatus usually employed consisted of steel hooks, with sockets into which poles could be inserted to obtain leverage. These hooks forced the heads of the spikes without extracting them. But the spikes passing through the chairs could not be removed so easily; additional apparatus in the form

<sup>29</sup> Haupt to Stanton, November 1, 1862, in *Official Records*, ser. III, II, 708-10.

of wedges and hooks were necessary and even then the removal of each spike took at least several minutes.

E. C. Smeed, one of the military railroad engineers, invented a simple portable apparatus which fulfilled all the requirements for use by raiding parties and made possible the destruction of track in one-sixth the time required to lay it. Furthermore, the rails were so twisted and bent that they were completely unfit for further use. His invention was a contrivance almost amusing in its simplicity. A claw shaped like a U, with the parallels bent at a slight angle and tipped with hooks at the ends, contained a hole for a wooden handle, which could be inserted to gain leverage. The hooks were placed under the ends of a rail and pressure was exerted on the handle; the rail was thus ripped out in less than half a minute, and the chair was simply broken. Furthermore, in removing the rail this way, it could be given as much of a spiral twist as was desired; by using hooks at only one end of the rail, while the other remained spiked down, the rail could be made into an excellent imitation of a corkscrew before it was entirely twisted out of place. And the beauty of Smeed's apparatus was that each set of claws weighed only about six pounds and could easily be carried anywhere.

To test the efficiency of this method, Haupt compared its results with those of his own experiments with the Confederate methods. To this end two piles of dry wood were accumulated, one of thirty-two cross-ties across which eight rails were placed, another half as large. Half a gallon of coal oil was poured on each pile and they were ignited. After three hours the rails were not heated to any appreciable extent; by next morning the ties had been completely burned, but the weight of the rails had not been enough to bend them sufficiently to prevent their being relaid. In contrast to this cumbersome procedure, Smeed's invention permitted the complete destruction of a roadbed in minutes instead of hours; and, of course, if there was plenty of time, the ties could be burned after the rails had been twisted.<sup>30</sup>

Traditional Yankee ingenuity had been tested by the problems of the construction corps, but before the war was over several other laurels were added to those it had already won. Particularly noteworthy was the progress made in adapting the railway to front-line military use. Early in the war P. H. Watson, Assistant Secretary of War, sent Haupt an armor-clad, bullet-proof car mounting a cannon. Haupt had no use for such a white elephant, and it was finally side-tracked in the yards at Alexandria.<sup>31</sup> However, before the end of the war a much more practicable railway gun mount was designed. At least one armored train, consisting of two cars, was used in the operations around Richmond in 1864. One of the cars was a common flat car, outfitted in the Atlantic & North Carolina shops at Newberne,

<sup>30</sup> Haupt to Halleck, May 16, 1863, in Haupt, *Reminiscences*, 197-203.

<sup>31</sup> *Ibid.*

North Carolina; heavy timbers, covered by old rails, were spiked to the outside planking to form the side and front of the car. Slits were cut in the side for musketry fire; a port hole in the front, which could be covered by a heavy shutter, permitted the use of a gun borrowed from a nearby field battery. The second car was similar to the first except that it carried a naval howitzer instead of a field gun.<sup>32</sup>

These forerunners of more modern railway gun mounts, however, never attained an importance equal to that of the ambulance trains which were developed at the same time and which marked considerable progress in ameliorating the lot of the wounded. In the Italian War of 1859 both the French and the Austrians had carried wounded in freight and cattle cars as well as in passenger coaches, but they had made no efforts to relieve the frightfully unsanitary conditions which prevailed. In the early days of the Civil War this procedure was imitated. Those too seriously injured to sit up were placed in freight cars, still on the field or hospital stretchers on which they had been brought to the train, or else were laid on hay, straw or pine bough beds. For ventilation holes were cut in the side walls. This makeshift procedure helped relieve congestion at field hospitals, but much suffering was caused by riding on hard stretchers or on more-or-less matted straw or hay, and this suffering was aggravated by the lack of cleanliness. Furthermore, although ten men constituted a comfortable load per car, necessity often required that as many as twenty be crammed in.

A few experiments were made with cars having two or three tiers of wooden bunks along each side, but early in 1863 a much greater advance was made by using stretchers suspended by india rubber rings from pegs on uprights. The greatest drawback to this invention was the feeling of insecurity on the part of the wounded men, who were constantly worried lest they fall. Several other innovations were tried on the various lines adjacent to the battlefields; at one time the Philadelphia, Wilmington & Baltimore experimented with a car built to carry fifty-one patients and provided with a stove, a water-tank, a locker and a seat for an attendant.

Many of the other roads copied this idea, but credit for the first modern ambulance train belongs to the Medical Director of the Department of Washington. In 1863 he ordered the construction of several complete trains equipped with special cars for the surgeon and his staff, for the apothecary and his store-room, for a kitchen, and for ten ward cars, each of which carried thirty patients. Many of these trains were built during the war, and three of them ran on a regular schedule during Sherman's campaigns around Atlanta. Each train took a

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<sup>32</sup> *Railway Age Gazette*, January 22, 1915; see also, *Railway and Locomotive Engineering*, LX (1915), 153.



section of the route between Atlanta and Louisville, making one trip each way daily, meeting its connecting train at its terminus. Wounded were transferred on the same stretcher from one train to the next. The more seriously wounded men were left in Nashville and Chattanooga, while those less seriously injured were taken through to Louisville.

The efficiency and success of the trains were cordially recognized by the medical corps; one officer reported that, in visiting these hospital trains, the air was found "sweet and pure, the wards are neat and inviting; and," he added, "it may unhesitatingly be said that men on hospital trains are often as comfortable and better fed than in many permanent hospitals."

Throughout the war locomotives of hospital trains had their stacks and hood painted a brilliant scarlet; at night three red lanterns were hung in a row under the headlight. As a result the Confederates never molested one of them; on the contrary, even the "ferocious" Nathan Bedford Forrest went out of his way to warn hospital trains whenever a stretch of track was to be obstructed or torn up. One of Forrest's scouts is said to have stopped one of them once, ascertained that it had sufficient stores, and then put it on a siding. Before an alarm could be given the main track had been torn up and five supply trains captured or destroyed.<sup>33</sup>

Southern soldiers were uniformly considerate of hospital trains, but the same was not true of any other trains, for they were legitimate prey of war and subject to all the dangers of battle. Insofar as possible, military railroad officials took precautions to avoid unnecessary danger. After the Confederates had evacuated Fredericksburg, Union spies reported that the tracks in the depot had been mined with a number of torpedoes which were set with percussion fuses. Soldiers removed those which friendly "contrabands" pointed out, but as an extra measure of precaution the first train to move over the tracks consisted of a locomotive pushing ahead of it a car very heavily loaded with scrap iron, so as to explode any that had been overlooked. None were found, but the caution was justified by an episode which occurred soon afterward: the torpedoes had been stored in a small brick building set apart from the station; one day a sentinel on duty handled one of them carelessly, precipitating an explosion. The entire city of Fredericksburg was shaken by the terrific blast, and the building was shattered completely. The only remnant of the sentry was a fragment of his gun found at a considerable distance from the building site.<sup>34</sup>

Military railroad trains were however, often subjected to gunfire from adjacent forests. A favorite Confederate ruse was to place some obstruction on the track, or else switch the rails out from under the wheels of the train, and then

<sup>33</sup> Anon., "Ambulance Trains from Civil War to Present," *Railway Age Gazette*, LXII (1917), 1439-44.

<sup>34</sup> Haupt, *Reminiscences*, 49.

attempt to capture the train and crew. One time only Southern carelessness in removing a rail on the inside instead of the outside of a curve saved a train from plunging down a twelve foot embankment; only the engine and two cars were derailed, but even before the dust had settled twelve rebels emerged from the bushes to complete their conquest. However, a detachment of the Fourth Delaware were on board to repulse just such a raid, and they drove off the enemy, chasing them through the woods, where "one fat rebel particularly distinguished himself in getting out of sight."<sup>35</sup>

This attack was only one of a series which occurred at about the same time and which Haupt blamed on Mosby's band. The Confederate leader would ride along, picking up local farmers who willingly volunteered for a night's work, and be gone before Union forces could be concentrated to meet him. By daybreak the farmers would have returned to their plows, ready to deny any knowledge of Mosby's whereabouts.<sup>36</sup> Haupt asked that drastic measures be taken to prevent endless repetitions of this manoeuvre; specifically he asked General Meade for authority to issue a notice that "if any attempt" should be made "to destroy the track, bridges, or telegraph, or any of the lines of railroad used by the Army of the Potomac, the residents in the vicinity for a distance of ten miles" would be "held responsible in person and property, and all the able-bodied citizens arrested. If the offenders can be discovered," stated the notice, "their punishment will be death."<sup>37</sup>

Even when the enemy was not actively engaged in harassing the military railroad lines their operation in the war zone was difficult enough. At first trains were regulated entirely by telegraphed instructions, without depending on any schedule or time-table. But in the weeks preceding the Second Bull Run this system collapsed completely. For days at a time railroad officials were unable to use the telegraph because it was out of order, or parts of it had been captured by the enemy, or the army was using it to direct troop movements. A serious stoppage of all traffic on the Manassas Gap Railroad occurred just when supplies were most needed by the army. Haupt commented with justification that "a system which admits of such irregularities is not safe and reliable. To require trains to lie for hours, perhaps for days, upon sidings waiting for instructions when there is no possibility of communicating with them, I cannot approve of."<sup>38</sup>

The temporary chaos at Manassas was cleared up as rapidly as possible by having officers walk or ride horseback from one train to the other to direct operations. But to solve the problem permanently a new system was adopted, under which all trains ran by schedule. In case the schedule became disarranged, or

<sup>35</sup> J. H. Devereux to Haupt, July 26, 1863, in *ibid.*, 248-50.

<sup>36</sup> Haupt to Rufus Ingalls, July 23, 1863, in *ibid.*, 250-51.

<sup>37</sup> *Id.* to *id.*, July 27, 1863, in *ibid.*, 251.

<sup>38</sup> Haupt to Stanton, June 6, 1862, in *ibid.*, 59.

special trains were required, an effort was made to telegraph an explanation of the situation to all station dispatchers. But if the telegraph were not available, Haupt was determined to "keep the trains moving by sending runners ahead with flags and relieving the runners where fatigued until expected trains were met." Cumbersome as this system might appear, it worked so well that during the battle of Gettysburg thirty trains per day were sent over a road that under normal conditions had a capacity for only three or four.<sup>39</sup>

At times it seemed that loyal adherents of the Union were more successful than the enemy in nullifying the best efforts of the military railroads. In 1862, during General McDowell's forced march to Front Royal, Haupt was disturbed by the failure of several trains of supplies to reach their destination. On walking out along the tracks to meet the delinquents, he found them still in Rectortown, four miles away. The conductor explained that the wife of a prominent army officer was a passenger and that she had gone to a nearby farmhouse to seek accommodations for the night; he was holding the train until her return. Haupt ordered him to proceed without his distinguished passenger, "but just then an elegantly dressed lady came tripping across the fields to take her place in one of the cars." During this period of great military urgency this lady had delayed four trains for three hours, and thereby thoroughly confused the entire supply situation.<sup>40</sup>

The most injurious tendencies against which the military railroads constantly had to fight, however, were attributable to the carelessness of the Quartermaster's Department. Two manifestations of this carelessness were particularly important: the practice of ordering too great quantities of stores taken up to the front, and inefficiency in unloading supply trains. Each quartermaster in the field acted independently, and all of them tended to stock up for any contingency; as a result, everytime the armies retreated carloads of goods were returned unused to base supply depots, or destroyed.<sup>41</sup> These supplies were not only wasted; but they monopolized the limited amount of equipment at the disposal of the military railroads and impeded the rapid movements of the army. Lack of promptness in unloading and returning cars added to the confusion. Instead of unloading an entire train as soon as it arrived, one or two cars would be unloaded and the rest run on a siding, to remain there sometimes for weeks.<sup>42</sup>

As a result of his experiences Haupt laid down three fundamental rules for military railway management, to be followed by all subordinates insofar as possible:

Not to allow supplies to be forwarded to the advanced terminus until they are actually required, and only in such quantities as can be promptly removed.

<sup>39</sup> *Ibid.*, 59-60.

<sup>40</sup> Haupt, *Reminiscences*, 174-75.

<sup>41</sup> Haupt to Stanton, November 18, 1862, in *ibid.*, 166-67.

<sup>42</sup> Report, Haupt to Stanton, September 27, 1862, in *ibid.*, 143.



To insist on the prompt unloading and return of cars.

To permit no delays of trains beyond the time fixed for starting, but when necessary and practicable, to furnish extras, if the proper accommodation of business requires them.<sup>42</sup>

To Haupt's three principles, McCallum added another, which permeated the activities of the entire corps throughout the war: "The economy so commendable and essential upon civil railroads was compelled to give way to the lavish expenditure of war; and the question to be answered was not, 'How much will it cost?' but rather, 'Can it be done at all at any cost?'"<sup>44</sup>

Day after day, throughout the war, the military railroads performed unprecedented tasks, two of which stand out above all the rest. In September of 1863 the defeat of Rosecrans at Chickamauga was believed to imperil East Tennessee, and Secretary Stanton was urged to send reinforcements from the armies in Virginia. General Halleck opposed the idea, pointing out that it would be impossible to transfer the troops 1200 miles quickly enough for them to be of any use. Lincoln was inclined to accept Halleck's opinion, but Stanton asked that the conference be adjourned until evening before this judgment was made final. In the intervening hours Stanton called McCallum, explained the problem and asked him how long it would take him to effect the transfer if he were given absolute authority over all railroads and telegraph lines. McCallum named a date well within the period during which Halleck had declared the troops could save East Tennessee. When the conference was reconvened that evening McCallum was called to repeat his argument, and he succeeded in winning over both Halleck and Lincoln.

During the next seven days he supervised the transportation by rail of Hooker's two corps, the Eleventh and Twelfth, consisting of 23,000 men, together with their artillery, road vehicles and equipment, a distance of 1200 miles from Catlett's Station, Virginia, to Chattanooga. When Halleck had scoffed at the idea of transferring the troops he had been on sound ground; experts estimated that by using the roads then available it would take the two corps about three months to make the journey on foot. But for the first time a "grand piece of strategy" was carried out by the use of railways, and McCallum was rewarded for his disregard of tradition by promotion to Brigadier General the day that the last troops arrived in Chattanooga. Several times later in the war large bodies of troops, together with all their impedimenta, were moved by rail, but none of these accomplishments rivaled in size, distance, rapidity, or strategic importance this first effort.<sup>45</sup>

Beyond doubt, however, the greatest achievement of the railways throughout the war was their work during Sherman's campaigns in 1864 and early 1865. It was necessary to furnish an army of one hundred thousand men and sixty thousand animals with supplies from a base 360 miles away, "by one line of single-track

<sup>42</sup> *Ibid.*, 139.

<sup>44</sup> *Report, McCallum to Stanton.*

<sup>45</sup> Charles F. Benjamin, "Recollections of Secretary Stanton," *Century Magazine*, XXXIII (1887), 758-68.

railroad, located almost the entire distance through the country of an active and most vindictive enemy." <sup>46</sup> Reference has already been made to the success of the construction corps and the hospital trains during the campaign. Sherman himself recognized the importance of the railroads to his success; according to his *Memoirs*,

The Atlanta campaign would simply have been impossible without the use of the railroads from Louisville to Nashville—185 miles—from Nashville to Chattanooga—151 miles and from Chattanooga to Atlanta—137 miles . . . But as I have recorded that single stem of railroad supplied an army of 100,000 men and 35,000 horses for the period of 196 days, viz.: from May 1 to November 12, 1864. To have delivered that amount of forage and food by ordinary wagons would have required 36,800 wagons, of six mules each, allowing each wagon to have hauled two tons twenty miles a day, a simple impossibility in such roads as existed in that region of the country. Therefore I reiterate that the Atlanta campaign was an impossibility without those railroads; and only then because we had the men and means to maintain and defend them, in addition to what were necessary to overcome the enemy.<sup>47</sup>

McCallum's final report indicates the magnitude of the task confronting the military railroads during the war. He pointed out that 2,105 miles of road were operated, that 419 locomotives were used to haul 6,330 cars, and that net expenditures were about thirty million dollars.<sup>48</sup> Not until several years after the end of the war did any single railroad company achieve mileage, rolling stock and a budget exceeding these figures. Both armies in the field fully recognized the strategic importance of the railroads, as may be indicated by mere mention of three railroad junctions where, although there were only a handful of houses in the vicinity, the hostile armies battled during the first year of the war: Manassas in Virginia, Bowling Green in Kentucky, and Corinth in Mississippi.<sup>49</sup>

That McCallum and his aides had done their work superlatively well was attested by one later observer, who commented that "with the possible exception of the Navy Department, it was the most efficient of the public services," and ranked "in that regard with the United States Sanitary Commission. These two contributions of our Civil War have been incorporated into the mechanism of all civilized war."<sup>50</sup>

Another historian of railways in wartime found in the experiences of the military railroads in the Civil War three particularly valuable lessons: first, the fighting power of armies is increased by the strategic use of railways; secondly, the early arrival of reinforcements at threatened points, which is thus made possible, gives strategical advantages otherwise unattainable; thirdly, expeditions may be undertaken at distances from bases of supplies which would be impossible without the use of railways to bring up supplies.<sup>51</sup>

<sup>46</sup> Report, McCallum to Stanton.

<sup>47</sup> William T. Sherman, *Memoirs* (New York, 1875), II, 398-99.

<sup>48</sup> Report, McCallum to Stanton.

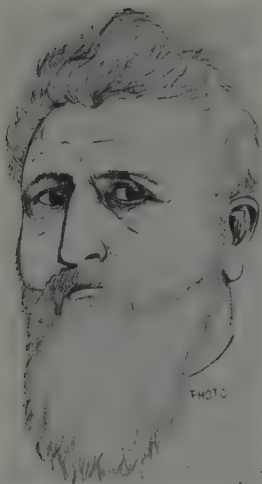
<sup>49</sup> *American Railroad Journal*, July 19, 1862.

<sup>50</sup> Fish, *op. cit.*

<sup>51</sup> Edwin A. Pratt, *Rise of Rail Power in War and Conquest, 1833-1914* (Philadelphia, 1916), 25.

# REUBEN FRANK BERNARD

By Don Russell



THE writer first made the acquaintance of General Bernard through a mutual friend, Brigadier General W. C. Brown. As Bernard had been dead some three decades, and had as yet provoked no monuments, the listener was at first inclined to believe that what he was hearing about this interesting character might be exaggerated by the enthusiasm of a friend for one with whom he had served, in the flush of youth, through a couple of Indian campaigns. But General Brown's enthusiasm was documented, for he had collected material in the preparation of his history, *The Sheepeater Campaign*,<sup>1</sup>

which showed that Bernard had been a personage well worth knowing. Other evidence—that found in books being most scant, and that culled from reminiscences more colorful than verifiable—widened the acquaintance of the author with the name of the old cavalry officer.

Most interesting testimony was the list of "One Hundred and Three Fights and Scrimmages," Bernard's proud boast, copies of which he had left with the Order of Indian Wars (he was the Order's first president), and in *Powell's Records of Living Officers of the United States Army*.<sup>2</sup> Doubtless there have been other soldiers who could claim as many battles, or even more; but most of them lost count, while Bernard had the evidence. He had collected a few battle ribbons as an enlisted man in the First Dragoons, fighting Navajoes and Apaches in the fifties, a few more in the sporadic Civil War engagements in New Mexico, and a large number in Sheridan's Shenandoah Valley campaigns in 1864 and 1865. Then he fought in Oregon, against Cochise in Arizona, and in the Modoc, Bannock, Sheepeater, and Chiricahua uprisings.

<sup>1</sup> Boise, 1926.

<sup>2</sup> William H. Powell (Philadelphia, 1890).



There seems to be no doubt that he was a master of minor warfare—of leadership in troop or battalion operations. There are rumors that his company did not shine on parade. It was his custom to “take on” any private that others found difficulty in handling. There are captains like that. Those of his company who were not in the guard-house at any one time made tough fighters. Although this ex-blacksmith probably could whip any man in the ranks, he was not what is now implied by the term “hard-boiled.” His consideration, his understanding, attached many men to him, and perhaps more were attracted by his willingness to undergo any hardship he imposed on them. They loved his reckless eagerness to get into any fight within reach. There is a theory that no man who is disliked ever earns a nickname. That he was most unkindly, most irreverently, and probably most affectionately called “Itchy Whiskers” proves that he was not disliked.

His talents for not maintaining discipline were legendary; separate instances almost challenge doubt. Born in Hawkins County, Tennessee, October 14, 1832, at the age of 21 he threw down his hoe at the end of a row of corn, ran off to Knoxville and apprenticed himself to a blacksmith. In similar informal manner he left the smithy to enlist in the dragoons as troop farrier. But as he appeared to be—and was—the toughest man in an unusually tough outfit, he soon became first sergeant.

His first appearance on the stage of history in Arizona was his wordy protest against Lieutenant George N. Bascom's conduct of negotiations with Cochise, the Chiricahua chief. Bascom's attempt to arrest Cochise set off a long war with the Chiricahuas. The Indian chief had offered to exchange one of three prisoners he held for three which had been seized by the troops. Bernard's insistence that this offer be accepted led to his arrest, but apparently nothing came from his excessive zeal. A few months later, at the outbreak of the Civil War, he was made acting second lieutenant.

Almost immediately Bernard was in more trouble. During the campaign in New Mexico against an invading force of Confederates, the troop of Lieutenant R. F. C. Lord—the officer who had promoted Bernard to the rank of first sergeant—was trapped by the ice-filled Rio Grande. Lord proposed to surrender. But Bernard kidnapped the troop, and performed a feat similar to Washington crossing the Delaware, *sans* boats and with his superior merely trailing along. A court of inquiry acquitted Lord, and Bernard again escaped penalties.

Late in 1863 Bernard was transferred from New Mexico to broader fields of activity in the east. On delivering recruits to the Army of the Potomac he found that there were no horses available for them. He recklessly stormed through the War Department, got the horses, and had himself placed in their command

by order of the Secretary of War. He joined his regiment, the First Cavalry, was wounded and brevetted captain at Todd's Tavern, and was brevetted major at Smithfield. At the close of the war he was brevetted colonel, and eventually commissioned captain in the First Cavalry.

A tour of duty in Oregon produced only one fight to add to his record. He returned to his old haunts in Arizona to take up the fight with Cochise where he had left off. Bernard fought three considerable conflicts with that chief, in the course of which the Chiricahuas were so scattered and discouraged that they were at length induced to make peace. Meantime Bernard had also been fighting Aravaipas, Pinals, and other Apaches and had expressed himself with customary lack of restraint against the Department's policy of annihilation, citing the original Cochise affair as justification for his defense of the Indian.

He arrived at Fort Bidwell, California, just in time for the Modoc war which broke out a few miles from there. In the first unsuccessful attack on the Lava Beds that lie along the California-Oregon boundary—a most difficult terrain, ideal for Indian or trench fighting—Bernard commanded one of the columns. His report did not please his superior very much, since he made many pointed suggestions on how the campaign should be managed; but most of them were later adopted.

Brevet Major General Oliver Otis Howard gave Bernard a free hand in putting down the Bannock uprising of 1878. Bernard kept close on the trail of the Indians; his troop and three others drove them out of their camp at Silver Creek; then in northern Oregon in the presence of General Howard he defeated them again at Birch Creek. Lieutenant Colonel James W. Forsyth then assumed command and after a fight at the North Fork of John Day's River the Indians were forced back to their reservations.

During the next year Bernard pursued a small band of Sheepeaters through some of the most difficult country in the world along the upper Salmon River in central Idaho. At the close of this campaign the Indians surrendered to a small force of scouts.

In 1881 Bernard's troop was brought from Fort McDermit, Nevada, to Arizona after the killing of Captain Edmund C. Hentig and several men of the Sixth Cavalry which occurred during an outbreak along Cibicu Creek. While escorting prisoners from Fort Thomas to Fort Grant, Bernard's Troop and another troop of the First Cavalry under Major George B. Sanford were attacked by the Chiricahuas under Juh and Nahche. Two troops of the Sixth Cavalry arrived and the Indians were driven southward. Bernard loaded six troops into a train at Willcox, and after a chase of some miles located the Indians along the right-of-way. The train pulled up alongside their position, and the troops and horses

were quickly unloaded, using the box-car doors as runways. A charge into the Dragoon Mountains scattered the enemy; Bernard kept up pursuit into Mexico but was forced to turn back for lack of supplies. This same band of Indians under Geronimo caused much trouble a few years later.

Shortly after this campaign Bernard was made major in the Eighth Cavalry. In his usual manner of taking the bull by the horns, he intervened in an election riot in Laredo in 1886, but instead of censure for the use of martial law without warrant he was commended in general orders. In 1890 he was brevetted brigadier general, his citation mentioning his fight against Cochise at Chiricahua Pass in 1869 and his fights at Silver Creek and Birch Creek in the Bannock War. He became lieutenant colonel of the Ninth Cavalry in 1892 and retired in 1896. He died at Washington, D. C., November 17, 1903.

There has been a tendency to exaggerate Bernard's lack of learning. He did make a sort of illegible loop which could serve as a final "e" where that letter was required, but which could be ignored where "e" was not required. The sense of his letters and reports was often equally ingenious. There is no evidence that the erudite General Howard ever criticised Bernard's grammar—certainly not while there was any Indian fighting to be done. The real regret is that General George Crook and Bernard were never closer together; that would have been a famous combination! As it was, Bernard became an almost legendary figure.



# PROFESSIONAL NEWS

The National Archives in Washington has recently acquired the older documentary archives of the Office of the Chief of Engineers, including the records of the former Topographical Bureau. The period covered extends from about 1813 to 1894, although there are some documents of earlier date. The collection is now available for use by historical investigators, who will find that its scope and historical value are extraordinary because of the wide variety of important functions performed by army engineers in that period.

From the beginning, the major military concern of the engineer department in time of peace has been fortifications; and in these records are to be found papers relating to forts along all the coasts of the United States and on the shores of the Great Lakes. In time of war engineer officers also erected interior fortifications, such as the formidable defenses of Washington during the Civil War. In the Mexican and Civil Wars they commanded engineer troops in the field or served on the staffs of military commanders. In connection with military operations they executed many important surveys and reconnaissances and sometimes, as in the Mexican War, acted as the equivalent of the modern general staff officer. Preparation for such duties was given at the U. S. Military Academy at West Point, which was under the direction of the engineer department until 1866.

With the beginning of extensive public works in the 1820's, army engineers were called upon in the lack of civil engineers. From this time river and harbor improvements became a permanent preoccupation of the department and out of this work developed such added duties as the fixing of harbor lines and regulating construction of bridges over navigable waters. For many years it was hardly less concerned with internal improvements such as roads, canals, and railways, either in an official capacity or through the loan of officers. In its connection with road projects it was the predecessor of the Bureau of Public Roads, established in the Department of Agriculture in 1893. The first attempts at flood control, which has recently become a major function of the Corps of Engineers, are also to be found in this period.



Surveys of the coast were performed by engineer officers beginning about 1818. After 1832 this labor was carried on by the Survey of the Coast under F. R. Hassler, generally under direction of the Treasury Department. From these beginnings developed the activities of the Coast and Geodetic Survey established in 1878. Surveys on the Great Lakes were made by army engineers as early as 1817, and in 1841 a permanent Lake Survey office was established at Buffalo (later removed to Detroit). Between 1831 and 1852, when the Lighthouse Board was created, the construction of lighthouses was in the hands of the Corps of Engineers. Thereafter, until the formation of the Bureau of Lighthouses in 1910, army engineers were included in the membership of the Board. Public buildings and grounds in the District of Columbia were in charge of the engineer department from 1867 until turned over to the National Park Service in 1933. District of Columbia engineering work, including the Washington Aqueduct, Washington Monument, bridges, land reclamation, etc., has also been under its supervision.

The topographical engineers, who formed a separate corps between 1838 and 1863, were specially charged with the execution of surveys, explorations, and reconnaissances and the preparation of corresponding maps and memoirs. One phase of such work was the making of surveys for innumerable internal improvement projects. Another was the survey of boundaries—international, state, territorial, and Indian reservation. But the most fascinating and memorable work performed was in the exploration and scientific geographical study of the West. Comprehensive knowledge of the vast area west of the Mississippi River was given to the world at large mainly through the efforts of the army engineers, and so wide a scope and large an importance did this work assume that the result was the establishment of the Geological Survey in 1879. The more exact cartographical work since accomplished, however, has little of the historical value to be found in the records of the earlier explorations. It is therefore worthy of note that the engineer archives include a considerable collection of the field notes of such explorations and other engineer activities.

In sum, the engineer archives are of interest not only for military history but for the history of public works, engineering, transportation, navigation, various government agencies, the western frontier, political boundaries, and geography, as well as for meteorology, ethnology, local history, and biography. The biographical value of the materials is attested by the frequent references to such names as: P. G. T. Beauregard, John C. Frémont, Henry W. Halleck, Joseph E. Johnston, George B. McClellan, George G. Meade, Montgomery C. Meigs, John Pope, William S. Rosecrans, Isaac I. Stevens, and Gouverneur K. Warren. (H.P.B.)

The Naval Historical Foundation is sponsoring an exhibit of naval prints at the National Museum, in Washington, D. C., during June. These prints are a part of the Eberstadt collection, recognized as the largest and most complete of its kind in the United States, and with but few superiors abroad. The exhibit includes engravings, etchings, and lithographs of ships and seascapes by various masters from the sixteenth to the twentieth centuries.

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A fine example of a type of semi-permanent fortification approved by American engineering practice during the Civil War has just been made available through the restoration, by the National Park Service, of Fort Stevens, in Washington, D. C. Of the sixty-eight enclosed forts and batteries built for the defense of the national capital, Fort Stevens was the only one ever engaged in serious battle. This was during the attack by the Confederate forces under General Jubal A. Early on July 12, 1864, which was observed by President Lincoln from the parapet of Fort Stevens.

The work is on Piney Branch Road between Quackenbos and Rittenhouse Streets, in the northern part of the city, one block west of Georgia Avenue. The eastern part of the original fort having been built on private ground, only the western portion, standing upon government property, has been restored. The restoration includes the emplacement and embrasures for nine guns and the magazine from which these guns were supplied with ammunition.

The interior slope of the parapet is revetted with exact reproductions, made of cement, of the upright sections of logs which were used in the original fort, and the planks of the gun platforms are also realistically duplicated in cement. Gabions woven of real brush, filled with earth, however, form the revetments of the cheeks of the embrasures. Every essential feature of this portion of Fort Stevens as it existed in 1864 has been reproduced from the detailed plans formerly preserved in the Office of the Chief of Engineers, and now in The National Archives, and historical investigators will find here an interesting object lesson in the art of fortification as it was practiced in the sixties.

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Effort is being made to establish an outstanding library of Civil War history at the Fredericksburg and Spotsylvania National Military Park. This is one aspect of plans of the National Park Service to make Fredericksburg a research center for students of the operations in Northern Virginia. There is in the park one kind of source material, which cannot be had elsewhere—the actual fields of four major battles, Fredericksburg, Chancellorsville, the Wilderness, and Spotsylvania Court House. If the bulk of the printed sources can be assembled there, the tools for the use of the research worker will be complete.

Though begun but recently, the library project has made excellent progress. The collection now totals more than twelve hundred volumes, virtually all of

which have been obtained through donation or by exchange from other libraries. The donations have come from individuals, organizations, and state governments in all sections of the county. Hundreds of volumes have come from the duplicate shelves of other libraries. The rapidity with which the books are being assembled reveals a marked spirit of cooperation throughout the country, and a live interest in seeing concentrated at an appropriate place a mass of materials of Civil War historical scholarship.

Any matter bearing on the Civil War is eagerly sought: regimental histories, published and unpublished narratives of participants, proceedings of Civil War historical societies, military manuals and text books of the period, biographies, and general histories. Especially desired at this time are the fourteen volumes needed to complete the set of *Southern Historical Society Papers* (I-XII; XLIII-XLIV).

Items which are quite common duplicates in the libraries of one state may be rather rare in those of another. Hence, by wide cooperation among libraries, a strong collection of Civil War materials might even be built up of only duplicates from other libraries. Books received which are already included in the collection are placed in the libraries of the other national battlefield areas in Virginia—Manassas, Richmond, Petersburg, and Appomattox.

The park library is housed in the new administration and museum building on U. S. Route No. 1, at the south edge of the city of Fredericksburg. Communications concerning it should be addressed to the Coordinating Superintendent, National Park Service, Fredericksburg, Virginia. (Branch Spalding.)

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Through a regrettable error the middle name of General John McAuley Palmer was spelled MacArthur on page 43 of the spring issue of the JOURNAL.

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Mr. Fletcher Pratt, of New York, is preparing a book on Napoleon, from which he has graciously permitted the JOURNAL to print some excerpts in this issue.

Dr. E. G. Campbell is author of *The Reorganization of the American Railroad System, 1893-1900* (New York, 1938), and a graduate of the Columbia University Graduate School.

Professor Alfred P. James of the University of Pittsburgh, who contributed the article on "The Battle of the Crater" in the last issue, is preparing a volume of the letters of Brigadier General John Forbes for the period 1757-1759.

Mr. Don Russell, who is connected with the *Chicago Daily News* and whose essay on General Bernard appears in the preceding pages, is author of *One Hundred Three Fights and Scrimmages; the Story of General Reuben F. Bernard* (Washington, 1936), the authoritative work on that colorful officer.



# THE MILITARY LIBRARY

*The Lost Battalion*, by Thomas M. Johnson and Fletcher Pratt. (New York: The Bobbs-Merrill Company. 1938. Pp. 338. \$3.00.)

An experienced war correspondent and a military historian have collaborated to provide, according to their own explanation, a complete chronicle of the supreme American hero-story of the World War, freed from the tarnish of mystery and sensational rumor. Probably after twenty years the reading public does not remember much about the story of the "Lost Battalion," so the structure of legend which the authors seek to demolish is not, one suspects, too solidly built. But the real and lasting interest of the book lies in its detailed presentation, after extensive, patient research, of a vivid story which serves well to illustrate modern warfare as experienced by much of the A. E. F. Not only have American official records been combed but the German side of the picture has also been carefully investigated with very interesting results. For those familiar with official records this might not seem too impressive a foundation, but it is supplemented and enlivened with a mass of data gathered from a large number of surviving veterans of all ranks, who were subjected to cross examination as to their recollections of the affair. The details thus accumulated have been checked against the official record, weighed as to their historical probability, and woven into the narrative effectively and judiciously. The present reviewer was particularly interested to note the comment that soldier memories of events could be clear and vivid but that they were confused and unreliable as to precise dates and hours. At the front one day was so much like another and the naming or dating of any particular day so inconsequential that even shortly after the event it became difficult to be sure of exact sequences or of accurate dating.

The story is presented as a long series of short, episodic descriptions of brigade headquarters, the artillery position, the infantry in the forest, German headquarters, and so on back and forth. This destroys any appearance of continuous narrative. The reader will sometimes find it confusing. But it serves very well to show how much military events are really the sum total of a complicated series of actions and decisions, often none too well co-ordinated, all interacting upon each



other in a confused way to produce the final situation. This approach makes the reader aware of all that is going on without letting him lose sight of the fact that the participants in the action were very ignorant of much that was happening. It is also clear that there were considerable periods when nothing was happening, punctuated by sudden battle events lasting with great intensity for a short time and then stopping as suddenly as they began. The contrast between the attitude of mind at headquarters and the actual state of affairs at the fighting front will be apparent even to an entirely inexperienced reader.

I do not see how anyone who can remember experiences of his own with the American infantry can fail to be moved profoundly by this tale. The simple, unelaborated account of what soldiers do and say at the front may have sometimes the appearance of journalism but it is very real. The long files of men stumbling and groping wearily through the woods in the dark searching for guides, the furtive encounters of men in pairs or in small groups, the absorbing interest in food even under grueling battle conditions, these and many of the other ironies of military confusion are all here. The fundamental problem of morale is analyzed in detail with accurate understanding of the important differences in officer personality and of the uncertainties created by the necessity of attacking with newly joined officers and inexperienced replacements. There are plenty of human touches, bits of humor even over corpses, all with the ring of truth. Even the ancient and persistent custom of fixing the blame on somebody is not overlooked, although that phase is touched on discreetly. It is clear, however, that the authors exonerate Major Whittlesey completely and one wonders how much this may have been one of the purposes which inspired the book. He appears in the story as a conscientious, intelligent man willingly bearing the brunt of the responsibility of his position under conditions for which he was not at all to blame, and then saved by circumstances from being made the "goat" only to be hounded into a false position of publicity. It is a tragic but convincing picture.

RICHARD A. NEWHALL

*The Confederate Ironclad Virginia*, by Harrison A. Trexler. (Chicago: University of Chicago Press. 1938. Pp. 95. \$2.00.)

This account of the performances of the *C. S. S. Virginia* is a painstaking work with copious notes and references to original sources, and entirely impartial in its summary of evidences and its conclusions.

After an account of the difficulties attending the transformation of the wooden steam-frigate, the *U. S. S. Merrimac*, into the armored ram the *C. S. S. Virginia*, the writer tells of her dramatic appearance off Fort Monroe and her swift destruction of two fine wooden sailing frigates. The first day's activity of the

*Virginia* created consternation in the North and rejoicing in the South. But on the following day occurred the fight between the *Virginia* and the small iron-built *U. S. S. Monitor* carrying two guns in a single turret.

The famous battle between ironclads was a draw, but it greatly affected the campaign against Richmond. The officers of the *Virginia* alone knew that she was unseaworthy, but the administration at Washington feared the breakup of the southern blockade and the destruction of northern cities. Stanton prepared to defend Washington by sinking stone-boats across the Potomac. McClellan was on the point of taking his army to Fort Monroe to advance thence against Richmond; he expected naval support on both flanks along the James and York Rivers. The threat of the *Virginia* stopped movement on the James, and the Union naval authorities felt unable to aid on the York. For two months the *Virginia* and the *Monitor* watched each other. When the slow advance of McClellan caused the evacuation of Norfolk, the *Virginia*, being without a base and unable to ascend the James, was destroyed by her commander.

WILLIAM L. RODGERS

*Oliver Pollock: The Life and Times of a Patriot*, by James Alton James. (New York: D. Appleton-Century Co. 1937. Pp. 376. \$4.00)

Dr. James, professor emeritus of history at Northwestern University, and the author of a definitive work on George Rogers Clark, has added a valuable work to the list of books bearing on the West during the revolution. The life of Oliver Pollock is the story of a wealthy American merchant who used his fortune and his credit to finance the war for independence, particularly the expeditions of Clark in the West.

In return for favors granted to the Spanish authorities in New Orleans, Pollock was given freedom of trade in Louisiana. He supported the American cause from the outbreak of the Revolution, bringing American and Spanish authorities together in an effort to promote trade between the two countries. In 1777 Don Bernardo de Galvez, a personal friend of Pollock, became Governor of Louisiana. Thereafter Spanish assistance through Pollock was of great significance to the American cause. Not only was the port of New Orleans opened to American trade, but in addition Galvez sent war supplies, provisions, and money to the Americans, particularly on the upper Mississippi and the Virginia and Pennsylvania frontiers.

Clark's victory in the Northwest was largely dependent on Pollock's aid. By the close of the year 1781 Pollock had advanced \$139,739 to Clark and his officers. He further increased his debts by taking in a lot of virtually worthless Continental currency at New Orleans in order to maintain the credit of the

United States. Although Morris is generally regarded as the banker of the revolution, Pollock advanced over \$300,000 to the American cause, more than any other person. In fact, he ruined himself financially by his generous advances; and, as might be expected, he had great difficulty in securing a return of his money. He was supported in the last years of his life by his family and friends. He died in 1832, "a patriot whose eagerness to serve and willingness to suffer and sacrifice for his country have not been surpassed in our history." The book not only relates the details of Pollock's life, but places this war financier in his various settings, showing life in New Orleans and Illinois in the period of the revolution. There are two appendices, notes, a classified bibliography, and an ample index.

JAMES H. RODABAUGH

*Military Operations, France and Belgium 1918*, Vol. II, by James E. Edmonds et al. (London: Macmillan & Company Ltd. 1937. Pp. 550. \$4.50)

This volume of the British official history of the Great War takes up the story of the German offensive on March 27 when General Foch assumed the task of coordinating the activities of the Allied armies on the Western Front. It covers the period to April 30 and deals with the German efforts against Amiens and the offensive on the Lys in April. Already published in this series are two volumes devoted to operations in France and Belgium in 1914, two for 1915, and one for events in 1916 up to July 1, with separate cases of maps.

Brigadier General Sir James Edmonds and his associates have maintained the high standard of excellence common to this series. Despite the obvious shortcomings of any official history, the British series is superior to the French and German official accounts. The latter have relied almost entirely on their own documents, whereas the British have consulted both German and French sources in preparation of these volumes. The battles in France and Belgium during March and April 1918 produced some of the most desperate and confused fighting of the war. Units were decimated and intermingled, and reports made by fighting units during these critical days were brief or non-existent. Yet General Edmonds has drawn together in a connected narrative the day-by-day story of the vast forces engaged and has done so in a clear and orderly fashion. One feels a doubt, however, that events moved with such measured steps. Almost completely lacking is any record of the feelings of the troops, who seem to be moved on this shattered chess board like teakwood pieces. Not that General Edmonds fails to achieve a measure of effectiveness in writing—he often does—particularly in his footnotes.

Commenting on the removal of General Sir H. Gough of the Fifth British Army in April General Edmonds writes:

Lord Milner's letter hardly does sufficient justice to the Fifth Army, composed practically of non-professional soldiers, and to its commander and to the staffs. Rendered blind by fog, overwhelmed by one of the most violent bombardments of the war, General Gough's eleven divisions, weak from reduction, in infantry and from lack of reinforcements, were driven out of indifferent entrenchments, recently taken over from the French, by the attack of two German Armies with 22 divisions in the front line and 22 in support. For seven days, fighting by day and moving by night, with scant assistance, they carried out a retirement in the face of a powerful and highly trained enemy, their line pierced but never broken: inflicting heavy casualties, they resisted that enemy's efforts with such success that his progress was gradually slowed down and time was gained to bring up reinforcements, so that the great German plan of annihilating the British Army in a single offensive failed and had to be abandoned. This was something more than "one of the most noteworthy episodes of the War."

General Haig offered to resign when Lloyd George and Lord Derby demanded the removal of General Gough, but as Sir Henry Wilson pointed out no one could fight a better defensive battle than Haig, so his offer was ignored.

The author does not join in the common chorus of amusement at the hasty flight of the Portuguese corps on the Lys in April, but shows that they were slated to be relieved, were defending miserable positions, and had been assured that the British would be responsible for the maintenance of the battle position in case of an attack. This volume destroys the following legends:

that the great German assault was delivered against the junction of the French and British Armies with a view to separating them and reaching Paris; that it fell equally on the Fifth and Third Armies; that the principal effort against the former effort was made by General von Hutier's forces; that the Fifth Army was badly commanded; that the defences of the Fifth Army were neglected and the bridges over the Somme not destroyed as ordered; that the Fifth Army was so badly defeated that it ceased to exist; that the situation in front of Amiens was saved by a hastily collected body of engineers and railway men known as Carey's Force; that the situation in front of Hazebruck was saved by the French after the British lost Kemmel; and that it was the arrival of the Australian divisions which stopped the advancing Germans in the victorious progress, in March toward Amiens and, in April, towards Hazebruck.

The sketches and maps provided by Major A. F. Becke are, as usual, extremely helpful. Printed with this volume are two pages of addenda and corrigenda to volume I of the 1918 series. The appendix of volume II contains a number of important documents, and the index is unusually complete.

H. A. DE WEERD

*The Apache Indians*, by Frank C. Lockwood. (New York: The Macmillan Company. 1938. Pp. 348. \$3.50.)

*Geronimo's Story of His Life*, taken down and edited by S. M. Barrett. (Oklahoma City: Harlow Publishing Company. 1938 Pp. 216. 80 cents.)

Anyone who has ever tried to find out something definite about Geronimo, to say nothing of Mangas Coloradas, Cochise, and Victorio, will appreciate the need for a history of the Apaches. A glance at Dr. Lockwood's bibliography will reveal how scattered and scarce the material is. Paul I. Wellman's *Death in the Desert*



has been a useful guide, but it attempted to cover more territory and is somewhat lacking in consideration of available source material. Dr. Lockwood has uncovered much that has been unused before, some of it collected by his friend, the late Charles Morgan Wood. Even so there are points where the story is narrowed down to one or two reminiscent accounts.

These difficulties being understood, there is no reason for withholding praise from this brief and scholarly history of the Apaches and their warfare from Spanish times to their present status as wards of the government. Such areas of controversy as the Cochise-Bascom affair at Apache Pass, the Camp Grant massacre, and the surrender of Geronimo are handled judiciously, with perhaps a shade of feeling in the Indians' favor. Some leaning toward Crook and against Miles might be noted despite the reviewer's inclination to agree with the author.

The military reader would welcome more details on the Apache methods of war which were somewhat distinctive. Here the author has made use of the unpublished memoirs of Brigadier General Thomas Cruse. It should be remembered, however, that Apache warfare was made up of hundreds of inconsequential fights; perhaps Dr. Lockwood included as many as reader interest would stand. In discussing the modern progress of the Apache he has avoided tedious recital of facts, although omission of the names of Richard Henry Pratt would seem an oversight. There are a few typographical errors and one or two unimportant factual slips. The illustrations include numerous Frederic Remington pictures and portraits of nearly all the notable Indian leaders, and many of their opponents.

For those who are looking for entertainment, it is a highly readable account. In addition it can be recommended as one of the few books on the Indian wars that is worthy of a permanent place on the library shelf.

*Geronimo's Story of His Life* was dictated in 1905 by the old chief to S. M. Barrett, now supervisor of publications of the public schools of Kansas City. The work originally published in 1907 has long been out of print. The present publishers have reprinted it from the original plates, in a handsome format considering the very reasonable price asked.

Geronimo's story does not check in every detail with known facts. The difficulties of using an interpreter, of an old man's memory, and of the editor's unfamiliarity with some of the subject matter may have contributed to this. Considering all these things, it is a remarkably credible document, but more important as an interpretation of a savage mind than as a historical recital. It represents one of the few cases in which a notable Indian leader has left a record of his motivation. Perhaps he has suppressed some details—what autobiographer has not?

DON RUSSELL

*Gallant John Barry*, by William B. Clark. (New York: The Macmillan Company. 1938. Pp. 530. \$3.50.)

John Barry, the only Catholic seaman to attain prominence in a marine whose officer personnel was recruited almost exclusively from Puritan New England and Quaker Pennsylvania, has received rather more than his share of attention from biographers. There have been five lives of him in forty years, and in writing a sixth, Mr. Clark goes to bat with two strikes called, for it is not apparent before reading the book why another is necessary.

He has made it necessary; for he is the first of the biographers entirely to subordinate the personal interest to the historical, and in so doing, has recovered more of Barry the person than any other historian. He is also the first of the Barry biographers to whom it has occurred that the work of a naval officer is not done on the deck of a ship. Other writers have done as well as he at following the fortunes of the captain in storm and sea-fights; others have noted that Barry was the man who preserved to the navy of the United States whatever was of value in the naval tradition of the United Colonies. Mr. Clark also investigates Barry's part in the building of the Washington navy, and gives us, with book and chapter, the reasons for the captain's success. The John Barry he shows is a merchant-prince as well as a seaman; does not bellow, but persuades; applies oil instead of pepper; knows goods, materials, methods of construction; and, into the atmosphere of bickering over precedence, commercial dishonesty and ungoverned enthusiasm that surrounded the institution of the navy, introduced an element as pacifying as a spring breeze.

The quantity of research expended upon the present work is prodigious; Mr. Clark has even investigated the account-books of forgotten Philadelphia merchants with whom Barry had dealings. If the work has any defect it is the apologetic character of the late chapters, when Barry, an old man and comfortable, was not quite the driving officer Benjamin Stoddert wanted for the Caribbean command. But this is a quibble over a book that in its sum is the final and definitive biography of one of the great figures of the early navy.

FLETCHER PRATT

# NOTES AND ANTIQUITIES

## "MILITARIE INSTRUCTIONS FOR THE CAVALLERIE"

One who sets out to study the early history of cavalry soon finds that he enjoys an advantage (or suffers a disadvantage, according as one chooses to look at it) in the relatively small mass of its literature as compared with that of infantry, artillery, fortification and many other subjects. The difference is more marked in English than that in other languages of military consequence. War being regarded, until quite recently, as the normal condition of mankind, treatises on the art of war, as on all the other arts, began to multiply not long after the general diffusion of printing, and England had an extensive output from the time of Elizabeth onward. So it is remarkable that no work devoted entirely to cavalry appeared in England until so late as 1632. Even in general military works the mounted service received little more than bare mention until well along in the seventeenth century.

Its first treatment in any detail is found in *The Souldiers Accidence*, published in 1625, the first of three manuals by Gervase Markham, all of which give some attention to mounted service, and which were reprinted in one volume under the title of *The Souldiers Exercise* in 1639 and 1642. Gervase Markham apparently set out to cover the whole field of human knowledge and he went pretty far on the road. His books treat, among other things, of gardening, veterinary medicine, fishing, horsemanship, tactics, bee keeping, "fowling by water and land" and the breeding of fighting cocks. He also tried his hand at poetry and drama. It was thus but natural that he should include cavalry in his survey, especially as he had been a soldier himself; but it is only one of many things touched upon in these manuals, which are of no great size. At any rate, no other Englishman attempted the subject at all until some years later. England had not put a real army into the field for generations. Some small expeditions had been sent out within the memory of men; there had been alarms of foreign invasion, leading to more or less intelligent measures of defence; but there had been nothing to cause Englishmen to give serious thought to military operations on any extensive scale. A good many saw service abroad, it is true, as professional soldiers of fortune or as

amateurs seeking adventure. They went as individuals, however, secured commissions or trailed pikes in foreign corps, and their stories, when they came home, were of what came under their own observation, not often extending to the cavalry service.

The first English treatise on cavalry, so excellent that it held the field undisputed for nearly thirty years, was not produced by a grizzled veteran of foreign wars, but by a college freshman. It is just possible that John Cruso had seen some military service, but it cannot have been much and there is no evidence that he had had any. He certainly possessed a thorough knowledge of one or more foreign languages and was a great reader; but how he could produce such a work is a mystery. It is not known when he was born, but boys usually entered a university at an earlier age then than now, and the date of his death (1681) suggests that he was not exceptionally old when he entered Caius College, Cambridge, in 1632. In that same year appeared his *Militaire Instructions for the Cavallerie: or rules and directions for the service of horse, collected out of divers forrain authors ancient and modern, and rectified and supplied, according to the present practice of the Low-Countrey Warres*. It was printed by the university printers.

As has been suggested, not much is known about John Cruso's life. He received his bachelor's degree from Cambridge University in 1635 or a year later, and his master's in 1639. He held a fellowship in the university for four or five years until deprived of it during the civil wars on account of his royalist sentiments. He was later chancellor of the diocese of St. David's, in Wales. At no time in his life could he have had any military experience whatever, unless possibly for a short time in his boyhood before he appears as a "sizar" at Caius, "working his way through college." Yet he wrote or translated six military books of real value, and his publications include no books not military. His drama *Euribates* never got into print and survives in a single manuscript in the library of Emmanuel College, Cambridge.

The *Militarie Instructions* is a large and handsome book with many illustrations, suitable for the shelves of a gentleman's library, where no doubt a good many copies immediately found their way. It was also an invaluable manual for the practical soldier, and many copies must have been worn out in service after the outbreak of the civil wars made the art of war an absorbing study to every man. A second edition was produced, apparently in considerable haste, in 1644. The book is uncommon now, even in England, and in this country is naturally very scarce. There are copies of the 1632 edition in the Huntington Library in California, in the Newberry Library in Chicago, and at the University of Michigan and Harvard University; the Library of Congress has a copy of the 1644 edition.

The title page bears a quotation from the Book of Proverbs: "The horse is prepared for battell: but victory is from the Lord." Cruso believed, however, that man should do his part, and in his book he discusses every aspect of the

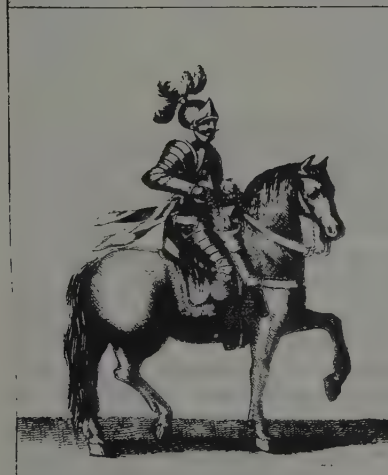




*To Horse.*



*Unsnap your Pistol.*



*Draw your Pistol.*



*Order your Pistol.*

EXERCISE OF THE HORSE PL.

R.C. Grosse.

Francis Grose, *MILITARY ANTIQUITIES*, After Cruso

mounted service, dividing his treatise into four parts: "Of levying men" "Of Marching," "Of Encamping" and "Of Embattelling." He says in his preface that he wrote the book only for his own use and information but that "two noble and judicious perusers" (one of them an officer on leave of absence) had revised it and recommended its publication. The organization, armament and tactics that he describes are in the main those then prescribed in the service of the Netherlands, but he constantly cites the standard works of Melzo, Basta and Wallhausen. It is worth noting that translations of Melzo and Basta were licensed for publication in London in December, 1631, but it does not seem that they ever appeared. May it have been that these were Cruso's? He published some military translations at a later time. One might speculate that the noble and judicious perusers diverted him to the publication of the original work that he had not ventured to offer to a publisher before.

Melzo's book was first published in Italian in 1611, and later in Spanish, French and German. Basta's appeared in 1612 in the Italian language, and translations into French and Spanish followed. Wallhausen's, originally in German (1616), was translated into French. If Cruso could read French at this time all three were accessible to him; if not, he must have known German and also either Spanish or Italian. Some years later he published translations from the French, so it is likely enough that he never read these treatises in the original German or Italian but only in the French versions.

Cruso assumed the normal enlisted strength of a troop to be sixty-four men, divided into three squadrons, called respectively by the names of the three officers, the captain, the lieutenant and the cornet. They were actually led, however, by the captain, the cornet and the senior corporal. The lieutenant was stationed in the rear, for his duty in action was to encourage the men and to kill any who misconducted themselves. The cornet carried the standard. In this connection the writer mentioned a curious custom, prevailing among lancers only. In the charge the cornet rode alongside the captain and endeavored to break the lance of the standard against an enemy, leaving the standard on the ground to be ridden over. This was occasion for pride; but for the enemy to get the standard with lance unbroken would have been a great disgrace. In the infantry, then as now, "the preserving of the colours hath ever been prized above life." It should be noted that this cavalry custom applies only to lancers, as they alone rely on shock action.

Heavy cavalry were either lancers or cuirassiers. Both were fully armored, closed helmet included, and both carried swords. The lancer carried an eighteen foot lance—not the enormous tree that the old man-at-arms used, but rather resembling the pike. The cuirassier is described as a lancer without the lance, instead of which he had two firelock pistols, eighteen inches long, carrying bullets of twenty in the pound. Lancers were wholly abolished in some countries. Light cavalry are classified as harquebusiers, carabines or dragons. The two former

wear back and breast, with open casques, carry two pistols like the cuirassier's, and are also armed with harquebus or carabine. Each of these is two and a half feet long, their only difference being in weight and bore, one carrying bullets of seventeen and the other of twenty-four in the pound. Dragons are mounted only for transportation. They normally fight on foot, and like infantry may be armed with either pike or musket.

The charge is delivered rank by rank, with apparently some thirty paces distance between ranks. The carabine or harquebus is rested on the bridle arm with the butt against or below the right shoulder, and fired at a distance of twelve or fifteen feet; if the pistol is used, it is not fired until almost in contact with an enemy. After delivering fire, each soldier wheels to the rear (by the left if possible), making way for the succeeding rank. This represents the practice in 1632. In his 1644 edition Cruso notes a change: the cavalry attack "now not by wheeling off as formerly but by charging through."

In the course of his treatise Cruso covers every detail of the mounted service, even to the pay table. Much of it reads very naturally to us now. A recent author has said that the ancients did not know that they were ancient but believed themselves to be quite modern. The present writer is disposed to agree with him. In Cruso's time as now, the captain had to "endeavour to know every one of his souldiers by their names." The trumpeter, in addition to being able to sound the calls, was required to be "fit to deliver embassies and messages." Commands were of three kinds: vocal (by word), semi-vocal (by trumpet) or mute (by signal). And so on with innumerable small details. Other things in this book seem strange to us. The lieutenant had to be able to read and write, as he kept the list of the names of the soldiers. The captain received ten per cent of the booty taken by the company, whether he was present or not. Reverting to the subject of trumpet calls, the *boutexselle* is mentioned. The present author has always supposed that "boots and saddles" meant just that, but evidently the phrase is a corruption of the simple command, "put on the saddle" or "saddle up."

The book ends with the modest statement: "If I have done well, and as the matter required, it is that which I desired: but if slenderly and meanly it is that which I could attain to." The freshman had done so well, in fact, that for twenty-nine years no Englishman felt the need of doing it again. In 1635 William Barriffe published one of the most popular manuals of the time—one which continued more or less in use for over a hundred years. In this he omitted discussion of mounted service altogether, saying that Cruso's book rendered it unnecessary. Barriffe's work went through six editions, and it was only in the last (1661) that a section on cavalry (by another hand) was added, signed with the initials "J. B." Cruso's work retained its authority until that time. One should not be misled, by the way, by the title of Barriffe's book: *Military Discipline of the*



*Yong Artillery Man*. "Artillery" in those days might mean "military equipment," or "munitions," and the "yong artillery man" was the young soldier.

As for Cruso's further work, he published two treatises in 1642: *Castrametation, Or The Measuring Out of the Quarters for the Encamping of an Army*; and *The Order of Military Watches*. They are sometimes found together in one volume and sometimes separately. There were also two translations from the French. *The Art of Warre* was printed at Cambridge in 1639. Nothing is known about its author, the Sieur du Praissac, but his book was widely read, both in the original French and in Cruso's English version, and was a recognized authority. *The Complete Captain* (Cambridge, 1640) is the Duc de Rohan's *Le Parfait Capitaine*, dealing chiefly with Caesar's campaigns, but including also a section on modern war.

In conclusion, to quote a sagacious remark in Cruso's preface, there was "no want of books for the practising of the foot (though I dare say they exceed rather in number than in weight)." Certainly this reproach could not apply to cavalry books. One, and one only, held the English field for a generation.

THOMAS M. SPAULDING

#### ERRATA: "THE BATTLE OF THE CRATER"

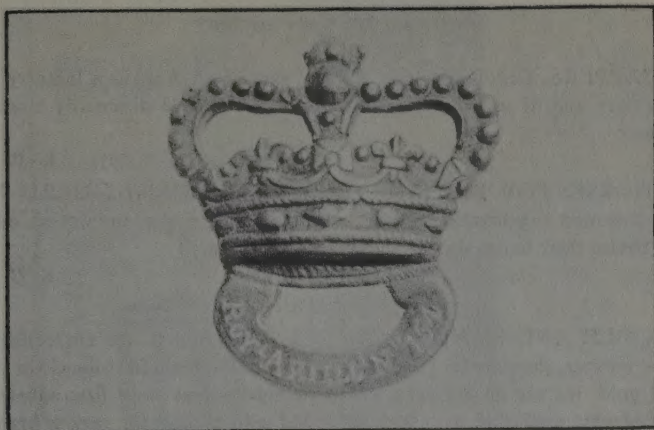
On page 6 of the spring issue of the *Journal* appeared a photograph titled "Federal Trenches, 1864." Our attention has since been called to the fact that this is actually a photograph of Confederate trenches constructed by General Joseph E. Johnston at Centreville, Virginia in 1862. Another view of the same line may be found in the *Photographic History of the Civil War* (New York, 1911), I, 166.

This error is of a kind much too frequently made and against which the researcher has only too little protection. The *Journal* has for some time considered the advisability of requiring all illustrative material to be documented with the same care and precision as would be used towards other historical evidence. Inasmuch as most negatives carry not the slightest clue to the identity of either time, place, or photographer, such documentation must largely depend upon a careful investigation of the picture itself and upon the testimony of people familiar with the episode or scene depicted.

#### A CARTRIDGE BOX BADGE OF THE ROYAL REGIMENT OF ARTILLERY

Revolutionary camp-sites and fortifications continue to yield an ever-increasing number of interesting mementoes. One recent find, recovered from a dust heap at Stony Point, New York, gives us a very distinctive type of appointment, a





brass cartridge box badge of the (British) Royal Regiment of Artillery (pictured above). This badge, which was worn on the outside flap of the men's cartridge boxes, is one of four known similar specimens in existence.

The Royal Artillery cartridge box badge, in common with that of some of the other British regiments present in America, is composed of the crown of England (Saint Edward's Crown) beneath which is a small circular bar with the regimental designation. The appointment found at Stony Point, and which is now in the Stony Point Battlefield Museum, is marked on the bar "ROYAL ARTILLERY No. 154." Another appointment, found at the site of Fort Washington, at 183rd Street, New York City, is marked "R. ARTIL. 4."

The writer is at a loss to ascertain the meaning of the numerical inscription on the badge. Of the Royal Regiment of Artillery itself, only the Fourth Battalion was present in America during the war. Edward Curtis, in his *Organization of the British Army in the American Revolution*, states that each of the four battalions which constituted the regiment was comprised of eight companies, each with a normal total of 116 men and officers. What, then, is the significance of the number "154"?

RICHARD J. KOKE

### QUERIES

25. GRENADIERS. Some companies of regular regiments were called "grenadier companies" in the period just prior to the Mexican War. What is the significance of this term and for how long was it used?

A. F. O'S.

26. COMMISSARY GENERAL OF PURCHASES. What relation did this officer bear to the Quartermaster General; what were his duties; what was the extent of his purchasing?

P. H. H.

27. SAPPERS. Did sappers ever form a part of an American infantry unit prior to 1917 and, if so, were they uniformed or equipped differently from the other men?

L. B.

28. HORSES FOR THE MILITIA AND NATIONAL GUARD. How did the mounted organizations of the National Guard and uniformed militia usually obtain their horses during the nineteenth century?

L. B.

### REPLIES

21. GOLD AND SILVER INSIGNIA. The ranking was not deliberate. The first insignia, the stars for generals in 1780 and the eagle for colonels in 1832, were of gold, for use on epaulets. When shoulder straps were first adopted in 1836, they were prescribed with both silver and gold borders for various branches of the service. For example, for infantry the borders were of silver, for artillery, of gold. It was provided that a lieutenant colonel should wear a leaf at the end of the strap of the same metal as that of the border, and that the major should have a similar leaf of the opposite metal from that of the border. The captain's double-bar, the first lieutenant's single bar, and the other insignia were to be of the same metal as the border. The second lieutenant wore a blank shoulder strap without insignia.

In 1851 all the silver borders on shoulder straps were abolished and it was provided that the insignia should be of silver for lieutenant colonel and all higher ranks and of gold for major and all lower ranks. On epaulets, however, all insignia were of silver, but different lengths and size of fringe were provided for the epaulets of field officers and those of company officers, and, although the epaulets of both major and second lieutenant were left blank, there was no confusion because of the major's longer and larger fringe.

In 1871 the epaulet was replaced by the shoulder knot. As only one style of shoulder knot was to be prescribed, there was need for an insignia for major, and it was natural to take the gold leaf from the shoulder strap. At the same time the bars of captain and first lieutenant were changed to silver.

With the advent of the olive drab uniform, the insignia was removed from its gold-bordered setting and attached direct to the uniform. This left the second lieutenant without any distinctive mark of recognition. Several suggestions were made, but the simplest seemed to be to adopt the same idea as the gold and silver leaves, indicated, so the second lieutenant was given a gold bar by special regulations of December 29, 1917.

A detailed outline of this development is given in Colonel Robert E. Wyllie's *Orders, Decorations and Insignia, Military and Civil* . . . (New York, 1921), pages 241-45.

DON RUSSELL